Learning to teach academic language: A mixed methods study of secondary teacher candidates' development of linguistic awareness and ability to support academic language for English learners

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LEARNING TO TEACH ACADEMIC LANGUAGE: A MIXED METHODS STUDY OF SECONDARY TEACHER CANDIDATES' DEVELOPMENT OF LINGUISTIC AWARENESS AND ABILITY TO SUPPORT ACADEMIC LANGUAGE FOR ENGLISH LEARNERS.

Dissertation

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ABSTRACT

LEARNING TO TEACH ACADEMIC LANGUAGE: A MIXED METHODS STUDY ON SECONDARY TEACHER CANDIDATES DEVELOPING LINGUISTIC AWARENESS AND ABILITY TO SUPPORT ACADEMIC LANGUAGE DEVELOPMENT

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Bilingual learners represent the faster growing population in U.S. schools, (National Clearinghouse for English Language Acquisition, 2010), but bilingual students who are English learners (ELs) are falling behind their peers as they struggle to develop the proficiency needed to succeed in an academic setting. The majority of teacher preparation programs are not preparing teacher candidates (TCs) with the skills needed to help recently mainstreamed ELs succeed in their content area classrooms (Bunch, 2011). This study examined how undergraduate, secondary education teacher candidates who had participated in supplemental trainings developed their ability to recognize linguistic demand, shelter instruction, and promote academic language proficiency.

Using a Sequential Mixed Design (Teddlie & Tashakkori, 2006), this longitudinal study examined the journals and lesson plans submitted by 31 undergraduate, secondary education TCs as they progressed through their prepractica. Six of these TCs were followed as case studies, with observations and interviews collected during their full practica. Quantitative analyses of journals found that TCs were able to recognize linguistic demand in lessons they observed, but were far less adept at describing or designing sheltered instruction that could promote academic language development. Scores increased when TCs were in a linguistically diverse classroom. However, prepracticum TCs found it difficult to isolate a linguistic demand for their lessons and to plan appropriate linguistic supports. Qualitative analysis revealed that, for many TCs,

attention to linguistic demand was focused largely on content-specific vocabulary that is challenging for all learners. However, a small number of TCs were able to attend to morphology and the Tier Two words that are needed to use academic language fluently across content areas. Case study interviews also indicated that TCs were cognizant of morphological and lexical challenges of academic language. Classroom observations revealed that some participants were able to plan instruction that sheltered content and promoted academic language. Collective data analysis indicates that recognition of linguistic demand precedes ability to plan instruction. Findings also indicate that the Academic Language Project and the infusions into methods courses helped TCs to realize the linguistic challenges of their respective content areas. Most importantly, the findings suggest that TCs are better able to focus on the language of instruction when they witness instruction that is focused on language. Therefore, TCs learn best how to support ELs when they observe and teach in linguistically diverse classrooms with knowledgeable mentoring teachers and field supervisors.

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CONTENTS

LIST OF FIGURES

LIST OF TABLES

Chapter One: Introduction

The population of public schools is becoming more diverse (García, Jensen, & Scribner, 2009), and bilingual and English learners (ELs) represent the fastest growing population of K-12 students (Harper & de Jong, 2004). Recent shifts in educational policies have led to rapid inclusion of English learners (ELs) into regular content area classes (Lucas & Grinberg, 2008). Yet despite the increasing cultural and linguistic diversity in U.S. K-12 classrooms, the majority of mainstream content area teachers are not prepared to modify instruction to meet the needs of students with limited English proficiency. Thus, ELs are underperforming, relative to Native English Speaking (NES) students (Montano, 2012). In response, teacher education programs struggle to enrich their already crowded programs of study with the knowledge and skills teachers need to support English learners (ELs) in mainstream, content area classes. The purpose of this dissertation is to analyze the growth in preparedness of a group of undergraduate, secondary education teacher candidates who participated in a series of trainings designed to help them develop the skills to work effectively with English learners in the mainstream, content area classes.

Definitions

Prior to discussing how to support English learners, it is essential to define key terms that will be used throughout this research. In this research, the term English learner, or EL, refers to bilingual or multilingual students who meet two criteria: they are learning English, in addition to at least one other language they already speak, in a mainstream US school where English is the primary language of instruction English speaking; and their reading, writing or listening levels either fall below the level the state deems proficient, or impede students' ability to achieve

successfully in a mainstream classroom. There are numerous terms used to refer to English learners (ELs): English Language Learner (ELL), which is synonymous, as well as English as a Second Language (ESL), and Emergent bilingual. These terms were not selected for this study, as they imply that the student is learning English as a second language, whereas many students may be learning English as a third or fourth language. Other terms commonly used in similar research are limited English proficient (LEP) and non-native speaker (NNS), but this dissertation will avoid such deficit-oriented terms, i.e., that define students by a limitation. In contrast, the term native English-speaker (NES) is used for students for whom English is their first language (L1). The term *teacher candidate* (TC) will be used to refer to students enrolled in a teacher education program at a university of higher education. A common and synonymous term, preservice teacher, is found in the literature, but is not used in this paper.

Academic Language refers to the kind of language typically used in content area classes to teach students the subject curriculum and to assess learning. It often employs specific linguistic and discourse features not generally found in less formal interpersonal interactions (Schleppegrell, 2004). A more thorough attempt at operationalizing this broad concept will be offered as part of the review of the literature in Chapter Two. Sheltered English instruction (SEI) refers to a set of methods and approaches to teaching that are designed to make monolingual English instruction in the content area more accessible to ELs. In this study, the term will be used to refer to practices employed in mainstream classes. Many school districts have created sheltered instruction classrooms designed to teach only ELs. However, this study seeks to examine how to equip all teacher candidates with these techniques so that they can work with students who have been mainstreamed.

The Problem

The population of students in U.S. public schools is changing. Ten percent of students in U.S. public schools in 2010-2011 are ELs, up from 9% in 2002-2003 (USDOE, National Center for Educational Statistics, 2013). While total Pre-K to 12 enrollment from 1998-2008 has stayed below 10%, enrollment of ELs during the same time period has exceeded 40%, making this the fastest growing segment of students (National Clearinghouse for English Language Acquisition, 2010). English learners are not a heterogeneous group. Although Latinos are the largest minority group in the U.S., constituting 17% percent of the nations' immigrants, ELs in U.S. schools speak various languages and have diverse cultural and educational backgrounds. For example, in 2011, students in the New York City Public Schools spoke 171 languages, and hailed from 197 countries (NYC Budget Office, 2011). By comparison, 204 countries attended the 2012 Summer Olympics (BBC Sports, 2012). The U.S. is beyond bilingualism. In the 1990s, ELs were concentrated in six states; however, in 2010, 14 states and the District of Columbia reported percentages of foreign-born residents greater than the national average of 13% (U.S. Census Bureau, 2010). This rich diversity of residents in the U.S. means that our schools are changing. School districts with little experience in bilingualism will struggle to catch up in an era of multilingualism.

However, standardized testing shows a persistent gap in K-12 test scores between White students and cultural and linguistic minority students. The National Assessment of Educational Progress (NAEP) assesses various subjects annually at fourth, eighth, and twelfth grades across the U.S. From 1996-2009, all students' scores increased, but Hispanic students, even those who are not ELs, scored significantly lower in math and reading than students classified as ethnically White (Hemphill & Vannemen, 2011). In other words, NAEP results show that while schools

have done a better job preparing all students in these skills, Hispanic students benefitted less, regardless of language status. Furthermore, students with limited English fared far worse.

Changes in U.S. educational policy have focused on rapid inclusion of ELs in mainstream classrooms (Lucas, Villegas & Freedson-Gonzalez, 2008). There have been several state-level English-Only campaigns, three of which have succeeded in eliminating transitional bilingual education and mandating rapid transition into mainstream classes: Massachusetts, Arizona, and California (De Jong, Gort, & Cobb, 2005; Gándara & Rumberger, 2008; Wright, 2005). The *No Child Left Behind Act* of 2001 requires schools to report that all student subgroups make adequate yearly progress (AYP). This has led schools towards more rapid inclusion as a way to reduce the number of subgroups (Abedi & Dietel, 2004; Darling-Hammond, 2000; Lucas & Villegas, 2011). Yet decades of research on bilingual learning have found that learners need more time to acquire the academic skills needed to perform on grade level in their second language: estimated ranges include 3-5 years (Calderón, Slavin & Sanchez, 2011), 4-7 years, (Hakuta, Butler, & Witt, 2000) and 7-10 years. Research also shows that strong proficiency in the first language transfers and supports academic performance in the second language (Cummins, 2008). Cummins' theory is supported by Massachusetts' data: despite the state directive to mainstream students after only one year, the majority of Massachusetts ELs mainstreamed in 2011 required four to five years of bilingual education before being transitioned (Montano, 2012).

ELs face the dual challenges of mastering English while also attempting to learn subject content in math, science, history, and other areas. The linguistic proficiency required to succeed in these content area classes takes years to master (Schleppegrell, Achugar, & Oteíza, 2004). It is not surprising therefore, that ELs face an increased risk of underperformance, grade retention,

special education placement, and dropout (Reschly, 2009). ELs in Massachusetts' public schools have the highest dropout rate of any subgroup, at over 8% (Montano, 2012). Further evidence comes from the Massachusetts Comprehensive Assessment System (MCAS), which shows a persistent difference for students who have been mainstreamed, i.e., reclassified from Limited English Proficient status to Formerly Limited English proficient (FLEP), i.e., showing proficiency in all four communicative areas and thus requiring no additional ESOL support (MDESE, 2010). Despite being reported as proficient and included in general education classes, FLEP students lag behind White students in both elementary and secondary classrooms (Montano, 2012).

While classrooms grow more culturally and linguistically diverse, teachers and teacher candidates remain predominantly White and monolingual, English speaking, with few having had instruction in bilingual or ESL pedagogy (Gándara, Rumberg, Maxwell-Jolly, & Callahan, 2003; García, Arias, Murri, & Serna, 2010; Tyler, 2011). Furthermore, many teacher preparation programs pay little or no attention to education for ELs (Bunch, 2011). Overall, the majority of core teachers lack the training needed to support ELs in mainstream classrooms (Lucas & Grinberg, 2008). This is particularly true in Massachusetts, despite a 2002 ballot initiative that mandated rapid inclusion. As a result, 92% of the ELs in the state are in SEI classrooms, most of which are taught by core teachers. Only 8% of these teachers hold an ESL license, and only 3% have completed all four of the recommended Massachusetts Category Trainings: Second Language Learning and Teaching, Sheltering Content Instruction, Assessing EL students using the MELA-O, and Teaching Reading and Writing to Limited English Proficiency Students, (Montano, 2012). In the fall of 2012, the Massachusetts Department of Elementary and Secondary Education (MDESE) launched a new initiative aimed at ensuring that all educators

are better prepared, beginning with teachers in Sheltered English Instruction (SEI) classrooms. As part of the Rethinking Equity and Teaching for English Language Learners (RETELL) initiative, schools of education are required to align their curricula to the requirements set forth by the DESE (Chester, 2012).

One common strategy for alignment is to infuse the types of linguistic knowledge teachers need into existing programs of study (Lucas & Villegas, 2011). This study seeks to examine the development of a group of secondary TCs who participated in an infusion of linguistically responsive teacher education practices into their teacher education programs at Landers College, a Massachusetts institute of higher education (IHE). Landers, (a pseudonym), is a private college whose TE program enrolls approximately 227 undergraduate students and 162 graduate students. From 2008-2012, undergraduate, secondary education teacher candidate were exposed to trainings that, in conjunction with infusions into other courses, aimed to help candidates recognize the academic language demands of their content areas and plan for sheltered instruction. These infusions revised teacher education (TE) courses to provide a more consistent awareness of the challenges that ELs face, and strategies for helping them to do so. This is an attempt to transcend the common practice of considering the needs of ELs and the challenges of second language acquisition in one lesson at the end of the semester, a marginalizing practice that is far too common in TE (Bunch, 2013; Lucas & Villegas, 2011). TE faculty co-taught with doctoral students who brought a functional linguistic perspective to their methods courses. They also involved trainers working with the field supervisors and clinical faculty so they could help support TCs.

The purpose of this dissertation is to analyze whether participants in these interventions increased or enhanced skills deemed important for secondary education teacher candidates, based

on a review of the literature, to supporting ELs' development of academic language. The specific research questions are: How did secondary teacher candidates describe linguistic demand in the classes they observed? How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development? Lastly, how well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development?

The most common component of this infusion was the Academic Language Project (ALP). All participants in this study took part in ALP trainings, which required all undergraduate secondary education teacher candidates to attend a series of two-hour trainings, one during each prepracticum semester, and to complete additional, related assignments. Thus, each TC would attend three trainings (one for each prepracticum semester), and the content of these trainings were designed to gradually help them develop skills to work with recently mainstreamed students in their content area classes. TCs were required to journal about how the language used in classes they were observing might be challenging for ELs. They were also required to write language objectives into the lesson plans they would be completing as part of the prepracticum seminars. The trainings and submissions were a requirement of the prepracticum seminar, but the ALP had no role in TCs' final grade. The ALP began in 2007, and was based on the experience of the university field supervisors who had been working with TCs in their field placements.

This two-year pilot (academic year 2007-2008, and 2008-2009) of the ALP tried to address some of the immediate challenges, principally, the information gaps that arose from TCs who were predominantly White, monolingual, and very successful in the language of schooling; moreover, the majority of TCs at Landers College come from a position of socioeconomic privilege, unlike many of the EL students they would eventually be teaching. Thus, they were

unaware of the challenges that ELs, or any struggling readers, faced in content area classrooms. The initial trainings included an immersion into an unfamiliar language, including a demonstration of sheltering techniques that can help. They included some strategies for teaching, drawn from the CALLA approach (Chamot, 1996), including before-reading and after-reading strategies. The initial training also stressed the importance of vocabulary, the language of schooling, general features of academic English, and an introduction to language objectives. After the trainings, TCs were required to work one-on-one with an EL in their field placement. Participant feedback, not surprisingly, indicated that this was too much, too soon in their already overcrowded program of study.

The challenge of the ALP over the next three years (AY 2010-2012, the period covered during this research) was to draw on the lessons of the pilot, i.e., how to calibrate the trainings so that TCs would be provided with crucial knowledge that would help them develop the skills to support the FLEP students in their mainstream classes. There were several challenges that had to be addressed: TCs needed enough information to raise awareness of the challenges and learn to support them; this information must be developmentally appropriate and conceptually accessible for 19-year-old novices with little to no formal knowledge of linguistics; this information needed to be assembled into a coherent framework; and, this information needed to be transmitted in two hours per semester. However, the trainings had the benefit of being longitudinal, thus these skills could be distributed across the three semesters and reinforced by the university field supervisors. Reflection, revision, and research led the research team to develop a theoretical framework that drew on three conceptual strands to create the Beginning Framework for Teaching Academic Language. This framework was used to support the sequence of three trainings, which were designed to help teacher candidates develop their awareness of the linguistic challenge of their

discipline, and learn how to design instruction that shelters content while promoting fluency in academic English.

Theoretical Framework

The theoretical framework of the ALP and of this dissertation draws on three elements that came to define the subject matter, through the constructivist process described above: 1) the framework for Linguistically Responsive Pedagogy to outline the skills needed for a linguistically responsive educator (Lucas & Villegas, 2011); 2) the methodology of sheltering instruction for ELs (Echevarria, Vogt & Short, 2008); and 3) the construct of academic language (Anstrom, et al., 2010). As mentioned above, the ALP created its own Beginning Framework for Teaching Academic Language, an operationalization of this construct used during the trainings. This Framework employed three-levels of foci for instruction that targets academic language: Vocabulary features (beyond Tier Three), word-level features, and sentence-level features. As Figure 1 shows, these elements, taken together, were the goal of the training- the desired pedagogical content knowledge and teaching practices for participants.

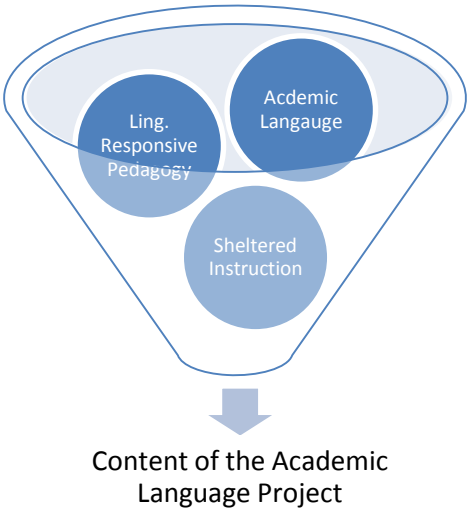

Figure 1. Theoretical Framework of this study.

The ultimate goals that arose during the ALP were drawn from these concepts: a) to help teacher candidates attend to the language implicit in their content area that would be challenging for ELs; and b) to enable teacher candidates to articulate these as language objectives and plan appropriate supports.

The Elements of the Academic Language Project. Ultimately, the Academic Language project incorporated these three major elements: an approach to teacher education derived from linguistically relevant pedagogy (Lucas & Villegas, 2011); an approach to instruction derived from the Sheltered Instruction Observation Protocol (Echevarria, Vogt, & Short, 2010); and a conception of language that draws on the construct of academic language (Anstrom, et al., 2010; Zwiers, 2008). These elements were integrated into trainings in response to the perceived needs of the participants over time. For example, the early pilot trainings in fall 2007 successfully introduced the idea of linguistic register, but did not adequately support TCs in how to write language objectives. Subsequent trainings introduced TCs to Lucas and Villegas' framework to help situate the need for language objectives, and incorporated textual analysis to illustrate discipline-specific aspects of academic language that could be the focus of language objectives.

The problem under investigation here is not academic language itself. The challenge in this project was how to revise the ALP based on feedback from the pilot group in a way that would be effective and useful, i.e., a concept of AL that TCs could understand and SIOP methodologies that they could use to apply them. How could this operational concept of academic language and these elements of sheltered instruction be taught to TCs in the limited interaction time of ALP trainings? These were the challenges that guided the evolution of the trainings. While there are specific and elaborate definitions of academic language and sheltered instruction (discussed below), before beginning this study, no one knew exactly what elements of

this model could be assembled into a coherent approach for teaching Academic Language to ELs that would be accessible to these TCs. Undergraduate TCs are still very young, have no teaching experience, and must juggle the demands of a double major. The ALP trainings could not attempt to review the entire corpus of the literature on academic language, sheltered instruction, or systemic functional linguistics. Nor would such an approach necessarily lead to improved practice for preservice teachers. The goals were to select the most useful elements of these constructs to help teacher candidates more effectively meet the needs of ELs in the classroom, and to prepare teacher candidates to work with ELs in a productive and culturally-competent manner. The primary viewpoint was that of the participant- what could he or she take away from the training to improve his or her teaching practice?

This study investigates how these teacher candidates, given limited training, came to conceive of academic language and language supports. Thus, this study analyzes the development of these TCs by reviewing journals, lessons plans, feedback sheets, observations, and interviews to ascertain if and how the enacted concept of academic language, derived from student feedback, transferred to the participants.

Although all teacher candidates at Landers College had studied a second language, for most it was a required course in high school. Few experienced being a cultural or linguistic minority, forced to do academic coursework in a language in which they were not proficient. What skills and experiences would best prepare them to support students who are still developing their English fluency? There is no single technical intervention that can meet the needs of all ELs (Bartolomé, 2010), so any approach must incorporate some awareness of the processes of second language acquisition (Lucas & Villegas, 2011), without overwhelming teacher candidates whose crowded program of study leaves only limited mental bandwidth for a supplemental, ungraded

training. Furthermore, the brief duration of each training although followed up by field supervisors, limited the scope of content that could be covered.

Linguistically Responsive Pedagogy (LRP). Lucas and Villegas' framework for linguistically responsive pedagogy (2011) establishes principles that synthesize the elements of cultural competence, linguistic knowledge, and pedagogical skill needed to work effectively with ELs. The framework was created to redress a mismatch between the current teacher preparation models and the demographics of students in the US. The authors synthesized the relevant literature and outlined what teacher educators need to do to train teachers who are culturally and linguistically competent to work with ELs. This model proposes that teachers need to understand and be able to apply essential principles of first and second language acquisition in order to understand the ways in which language acquisition impacts academic performance. This framework details four types of language knowledge and teaching skills and three orientations. The skills include: a) the ability to learn about ELs' language background, experiences and proficiencies, in order to understand that ELs are not a homogeneous group; b) the ability to identify the language demands of academic language in the classroom; c) the ability to scaffold those language demands for ELs; and d) knowledge of second language acquisition, including the theories of comprehensive input and the affective filter (Krashen & Brown, 2007), a focus on linguistic form (Schleppegrell, 2004), and Cummins' (2008) research on transfer of first language literacy and his distinction between Basic Interpersonal Communication Skills (BICS) and the Cognitive Academic Language Proficiencies (CALP) needed to succeed in an academic setting.

The LRP framework includes three orientations that are essential for teacher education: sociolinguistic consciousness, value for linguistic diversity, and an inclination to advocate for

ELs. These orientations require teacher educators to move beyond merely providing more methods to engage teacher candidates to develop a deeper understanding of the sociocultural issues involved in U.S. bilingual education. Such orientations require comprehension of the interrelatedness of language and culture and the ways that the power structures of school have excluded cultural and linguistic minorities. With this understanding, teachers will have the "ideological clarity" (Bartolomé, 2010) to understand their own beliefs about language, culture, and power, and how these beliefs have been shaped and reinforced by the exiting power structure. Teachers need to see that their own prejudices against non-privileged dialects have been instilled in them, and until they understand the oppressive intent behind these prejudiced attitudes, they will unknowingly reinforce and reproduce them. With this awareness, teachers are more able to value students' linguistic diversity and background knowledge, to encourage student learning, hold equally high expectations of success for all students, and hopefully advocate for quality education for ELs.

How could such a broad suite of orientations, skills, and knowledge be taught to teacher candidates, who already carry a crowded program of study? Upon review, it was found that while other classes at Landers College were addressing the sociocultural elements, there was unequal opportunity or expertise among the faculty to also teach the linguistic knowledge and the skills needed to effectively shelter instruction. Thus, the developers of the ALP looked to inculcate two skills: first, recognition of the difficulty of language used in content area lessons, and second, strategies for sheltering these demands while promoting academic language development.

Academic Language. In order to understand the needs of ELs and FLEP students, content area teacher candidates benefit from instruction that makes explicit the linguistic demands of academic language (Bunch, 2011; Lucas, Villegas, & Freedson-Gonzalez, 2008; Schleppegrell, 2004). In order for teacher candidates to be able to isolate and scaffold the linguistic demands of their content area, they must be able to recognize these demands for themselves. Thus, trainings were designed around the concept of academic language, i.e., the register of English that correlates with success in each discipline in formal secondary educational settings. Such accomplished students, accepted into one of the top 50 US universities, are highly adept at the language practices of their disciplines, and while they recognized the conceptual difficulties of their areas of expertise, most of them could not see what was difficult about the language. Just as McLuhan (1967) observed, "we don't know who discovered water, but we know it wasn't the fish," these students were so fluent in the discourse of their disciplines that they could not distinguish when they had slipped into the dialect of their content area discourse. Before these students could shelter the linguistic demand, they needed to be shown what the demand was. How is the language used in school different from that used in everyday speech? History majors needed to be shown how often confusing sentences written in the third conditional were used, (e.g., *the peace at Versailles would have been a different story if President Wilson had had access to radio*) with no acknowledgement of how confusing such a construction can be. Math majors often take long sentences as easily intelligible and transparent:

> Four children have small toys. The first child has 1/10 of the toys, the second child has 12 more toys than the first, the third child has one more toy of what the first child has and the fourth child has double the third child. How many toys are there?

This sample's linguistic difficulty is not solely mathematical. The obscured data points are challenging for all students, but the frequent use of comparatives, prepositional phrases, and complex noun phrases present a much greater challenge to students developing reading fluency in English. The first step in preparing TCs to teach academic language is that they see its linguistic difficulty for themselves. First, however, academic language needs to be defined.

Linguists describe how specific sociolinguistic contexts have unique and specific ways of using language that are deemed appropriate. These ways of using language are called *registers,* and the construct of academic language refers to the specific register of English used in formal education, school texts, and commercially available, standardized assessments. Schleppegrell (2004) defines register as "the configuration of lexical and grammatical resources, which realizes a particular set of meanings" (pp. 45–46). Register is the collection of linguistic features that occur in a given context, i.e., a written report submitted for a class grade versus informal conversation with peers at lunch (Halliday, & Hasan, 1989). Several different frameworks have attempted to operationalize academic language. In 1979, Cummins originated the term cognitive academic language proficiency (CALP) to help differentiate between basic interpersonal communication skills (BICS) and the kinds of academic discourse needed to succeed in classrooms. His work explains why ELs who are conversationally fluent may take much longer to perform successfully in academic English. This conception of language focused largely on global reading skills and their ability to transfer from the first language (Cummins, 1999). More recent research draws on linguistic theory to define particular features of language that characterize academic language, such as vocabulary (Coxhead, 2000), syntax (Schleppegrell, 2004), discourse practices (Gee, 2008; Schleppegrell & de Oliveira, 2006), text-level discourse

features (Scarcella, 2003), and cognitive skills (Zwiers, 2008). Anstrom et al. (2010), in a review of the literature on academic language (AL), suggest that,

> The approaches are not mutually exclusive, but rather require those who are attempting to operationalize the construct to make choices for their specific situations. (p 4)

In the case of this intervention, the concept of AL focused on concrete elements of language that are associated with thinking skills and literacy tasks. For example, Venn Diagrams are a common tool used to shelter instruction, but for learners to write or speak about what they learned, they require the language of comparison and contrast. Group work promotes interactive learning, but if groups are to report their findings, they should be provided with linguistic models of how to structure their response, e.g., scientific procedures are presented in the past tense, and they require conditional statements using modals. This conception of AL was dictated by the needs of the secondary teacher candidates themselves, whose own proficiency with the language of their disciplines actually hindered their ability to recognize linguistic demands of classroom practices in the initial rounds of training. Secondary teacher candidates needed to be shown which discipline-specific academic vocabulary words, syntactical constructions, and textual organization strategies would require scaffolding for ELs, and for all developing readers.

Scaffolding academic language and sheltering instruction. As secondary education teacher candidates begin to develop awareness of the linguistic challenges inherent in their content major, they need to know how to ameliorate those challenges for students who must simultaneously learn the content and develop proficiency in the register of academic language. Since every content lesson is a language lesson for ELs, content teachers must build the necessary language skills for students to access the content knowledge while developing

academic English literacy in students. Two terms that apply to this process are scaffolded instruction and sheltered instruction. The concept of scaffolding originates in the work of Russian psychologist Lev Vygotsky, who theorized that social interaction helps learners accomplish more difficult cognitive tasks than would be possible alone. An educator uses language to help learners move beyond their actual developmental level and into their zone of proximal development, aiding them to perform tasks that are just beyond their maturational level until they internalize the supportive processes (1978). This technique has come to be known as scaffolding, since it implies external supports to achievement that are intended to be temporary and removed once the learner has attained mastery. An example of an approach that uses scaffolding is the Gradual Release of Responsibility (Pearson & Gallagher, 1983), where the responsibility for completing a task moves from the knowledgeable teacher to the student. The process begins with modeling: "I do it"; then to guided instruction: "We do it"; next comes collaborative learning: "You do it together"; finally, it leads to independent learning, e.g., a test or homework assignment: "You do it alone" (Fisher & Frey, 2008).

Another term associated with making content more comprehensible for ELs is sheltered instruction. This is a method for making grade level content accessible while simultaneously promoting English language development. The Sheltered Instruction Observation Protocol (SIOP) is a nationally known framework for creating engaging and well-supported lessons in Sheltered English that address both content and language (Echevarria, Vogt, & Short, 2010). The SIOP is a researched-based observation tool that helps teachers plan content area lessons that will effectively support ELs. The model has eight major components, including building background, providing comprehensible input, and building interaction and application into

lessons. Essential to this training is its focus on lesson preparation, delivery, and assessment. The SIOP protocol calls for explicitly stated content and language objectives.

However, if teachers and teacher candidates are to plan effective scaffolded lessons that shelter instruction, they must understand the AL inherent in the lesson and the current proficiency level of the students in the class (Brisk & Zisselberger, 2010). Once these are known, instructors can use effective techniques to support learners in their language and content learning, such as modified teacher talk, structured group work and interactions, multimedia support, and clear instructions (Echevarria, Vogt, & Short, 2010; Gibbons, 2003; Verplaetse & Migliacci, 2008; Zwiers, 2008). However, unless these supports target a specific aspect of the language of the lesson, they will not promote fluency in academic language. There are elements of sheltered practice that support all learners, including activating background knowledge, using multiple modalities of learning, and cooperative learning. These are what de Jong and Harper (2004) call "just good teaching," (p. 153) but unless they are yoked to an understanding of the linguistic demand, or the processes of second language acquisition, they will not meet the needs of ELs. The techniques that support native English speakers are necessary but not sufficient for helping learners develop second language proficiency. For example, an approach to teaching language for L1 English speakers may rely solely on the content-specific vocabulary of the lesson (e.g., *mitochondria, oligarchy, equilateral,* or *allusion*) and take for granted other incidental vocabulary that may be challenging for non-native speakers. As Harper and de Jong (2004) observe:

> Focusing on language as a goal implies that content teachers are able to identify the academic language demands in their classroom and accept responsibility for the language development of ELLs. (p. 120)

Academic words taken for granted (e.g., *comprise, justify,* or *scheme*), can be stumbling blocks for students who are still developing incidental vocabulary in English. Native English speakers may have encountered the word *scheme*, either from their parents, cartoons, or in previous coursework, but this may be a new word for ELs, who are still developing their mental lexicon in English. These academic words, often quite abstract, need to be defined, reworded, or even explicitly taught to make the content accessible to all learners in class.

The goals of the ALP are drawn from these concepts: a) to help teacher candidates attend to the language implicit in their lessons that would be challenging for ELs; b) to articulate these as language objectives; and c) to plan appropriate supports. Teacher candidates, monolingual Whites in particular, must also realize that the student populations in the classes they will be teaching may be very different from the classes they attended, and in order for their teaching to serve all learners, it will be different from how they were taught in K-12.

Purpose of the Study and Research Questions

The purpose of this longitudinal study is to analyze growth in ability to attend to linguistic demands and shelter instruction of the secondary content area teacher candidates who participated in the Academic Language Project (ALP) trainings. Through academic years 2010-2012, undergraduate, secondary education teacher candidates at Landers College were exposed to trainings that, in conjunction with infusions into other courses, were aimed at helping them TCs recognize the academic language demands of their content areas and plan for sheltered instruction. The ALP trainings, work with field supervisors, and infusions of academic language support into math and history methods courses were all part of a Title III grant aimed at helping content area teachers learn to target academic language in order to support recently mainstreamed students. The purpose of this dissertation is to analyze how the TCs who

participated in the ALP developed the skills that are essential, based on a review of the literature, to supporting ELs' development of academic language.

Because teacher candidates already carry a crowded program of study, including dual majors, prepracticum and practicum placements in the field, there is little space to add to the teacher education curriculum. Yet there is much that teachers must know in order to work effectively with English learners. How can teacher education programs infuse this knowledge into a teacher preparation course if adding another course is impractical? In addition to infusions of academic language into other coursework, the teacher education program at Landers College attempted a supplementary training to help develop the knowledge and skills necessary to work effectively with English learners, and the purpose of this study is to look for growth over time on ALP participants' ability to work effectively with the ELs. Working effectively in this case will be defined as demonstrated ability to focus on linguistic demand in content area lessons, to plan language objectives that will address those demands, and to scaffold instruction to support learners to help them master content while developing these linguistic skills. These are the specific question guiding this study:

- Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed?
- Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development?
- Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development?

Researchers collected participant journals and lesson plans during each of the three sequential trainings conducted during teacher candidates' prepracticum semesters. In addition, several participants agreed to follow-up observations and interviews during their full practicum. Transcripts and field notes from these observations notes and interviews were analyzed to see if teacher candidates demonstrated an increased ability to attend to the linguistic demand and plan lessons that effectively shelter content.

Significance of this study

As the demographic data make clear, there are more ELs in our schools than ever before. English learners are no longer a special population of our students; they comprise a significant percentage of our students, and teacher education programs must explicitly consider the needs of ELs as they train the next generation of educators. This is particularly critical, since federal and state-level policies such as *No Child Left Behind* or English-Only movements in several states have resulted in students with limited English proficiency being placed in mainstream content area classes sooner than bilingual research recommends. Research has shown that the vast majority of mainstream content area teachers while they may receive extensive training in how to teach their discipline, receive little training in how they can support the English learners in their classroom and help them develop their proficiency (Gándara, Rumberg, Maxwell-Jolly, & Callahan, 2003; García, Arias, Murri, & Serna, 2010; Tyler, 2011).

However, this is a time of massive policy change, and these changes have implications. While the national move toward Common Core Standards and the resulting assessments do little to address the needs of ELs, many states are now outlining the skills teacher education programs must provide to candidates in order to meet the needs of ELs. The World Class Instructional Design Consortium (WIDA), an organization with members from 31 different states, has created

a set of standards for English language learning students from kindergarten through 12th grade. These standards have been adopted by many states, and focus quite heavily on academic language development (WIDA Consortium, 2012). In Massachusetts, the state where Landers College is located, a recent initiative, spurred by a Justice Department lawsuit, has led to a mandatory syllabus that institutions of higher education must incorporate into teacher education preparation (Chester, 2012). Named Rethinking Equity and Teaching for English Language Learners (RETELL), the syllabus for this initiative includes many elements addressed in the Academic Language Project.

This study examines the growth vis-á-vis attention to academic language and ability sheltering instruction for a group of TCs who participated in the ALP trainings, one possible method of infusing academic language instruction.

Limitations of this study

While the researcher believes this study can make a valuable contribution to the field of teacher education, there are limitations. First, the small sample size makes generalizing results for teacher education as a whole difficult. Not all participants submitted data for all three semesters, and only a handful of teacher candidates were followed into their practicum, due to the limitations of time. Furthermore, those who were observed during their practicum were volunteers. Second, the positionality of the researcher must be considered, since the researcher was also the primary developer and trainer in this project. Lastly, it is difficult to disaggregate the impact the academic language trainings from other factors, such as the impact of infusions into other coursework, and characteristics of the teacher candidates themselves.

The next chapter in this study will present the results of a review of the relevant scholarly literature. It outlines the criteria for the search, the questions that guided the review, and the literature that was used to create the theoretical framework.

Chapter Two: Review of the Literature

In this study, I propose that teacher candidates need more effective preparation to work with ELs. In order to design such instruction, it is necessary to outline what teachers should know about language and second language acquisition. This section reviews recent literature that outlines the skills and knowledge that are needed and how they might be developed. It concludes by proposing that helping teacher candidates become aware of the linguistic challenges of their content area, and how these features may be sheltered and taught, will result in classroom teachers who are better prepared to support ELs in their mainstream classrooms.

In selecting research studies for inclusion in this synthesis, a systematic review of the relevant literature was conducted according to the following parameters:

1. Studies with direct relevance to the topic, i.e., those involving preparing teachers to work with English learners.
2. Studies published since 2000.
3. Studies conducted largely within the United States, limited to those published in English, and focusing on settings where English is the main medium of education.
4. Studies focusing on K–12 education. While studies involving early childhood, postsecondary, or adult learners are not included, some research at the high elementary level is relevant to the topic of providing language support for ELs.
5. Empirical studies from different methodological traditions, including (a) experimental and quasi-experimental studies; (b) correlational studies; (c) surveys; (d) descriptive studies; (e) interpretative, ethnographic, qualitative, or case studies; (f) impact studies of large-scale intervention projects; and (g) demographics or large-scale achievement data.

6. Literature reviews and conceptual pieces.

Within these parameters, the process of gathering studies from the various sources was carried out as follows. First, a search of the ERIC and PsychINFO databases was conducted using the terms "teacher education" combined with the following keywords: "secondary education," "bilingual," "limited English proficient (LEP)," "English Language Learner (ELL)," "English to Speakers of Other Languages (ESOL)," "English as Second Language (ESL)," "Academic language," "systemic functional linguistics," "academic English," "SIOP," "sheltered immersion observation protocol," "scaffold," and "sheltered instruction."

Second, selected journals were manually reviewed, including journals supported by the American Educational Research Association *(American Educational Research Journal, Educational Researcher, Review of Educational Research,* and *Review of Research in Education),* as well as other well-known journals focusing on academic language education *(Understanding Language* and *Journal of English for Academic Purposes),* and bilingual/TESOL education *(TESOL Quarterly* and *Bilingual Research Journal).*

From these sources, only articles, empirical studies, literature reviews, and conceptual pieces from peer-reviewed journal articles were included. Empirical studies were used to report research results, whereas literature reviews and conceptual pieces were used to help explore and operationalize the major theories. References in each article were also searched for additional relevant sources.

Preparing teacher candidates for linguistically diverse classrooms

This review addresses three critical domains of the literature: linguistic knowledge, teaching practices, and teacher preparation. These domains are viewed through a sociocultural lens, i.e., an approach that moves beyond abstract linguistics to consider how sociocultural

context shapes language use. Based on these domains, this review is organized by four guiding questions. The first three address knowledge about language and teaching, while the last examines teacher preparation. The questions are:

1. What do mainstream content area teachers need to know to instruct ELs?
2. What is the language of school?
3. What kinds of instructional practices are effective?
4. How can teacher education programs prepare teacher candidates to support ELs?

Each section includes a summary that relates these findings to this study. The first section presents a synthesis of what knowledge mainstream content area teachers need to support ELs in their classrooms. The next section reviews different approaches to operationalizing the construct of academic language, and begins to analyze its linguistic features. The review then turns to specific teaching techniques designed to help ELs master content while developing their academic language proficiency. Finally, it reports on the models that teacher education programs have used to prepare mainstream teachers to work with ELs, and their effectiveness. In all, the four sections describe the theoretical underpinnings of the ALP, the needs of teacher candidates, and the intended outcomes of the trainings.

What do mainstream content area teachers need to know to instruct ELs? The literature on teacher education regarding ELs represents a wide range of knowledge and skills that are theorized to help teacher candidates and in-service teachers to work more effectively with ELs. Several key studies have established an array of these desired outcomes that draw on three broad areas: linguistics, methods, and sociocultural issues.

Fillmore and Snow (2000) suggest that, if teachers are to promote language and literacy in immigrant students with limited English, they need to learn more about the role that language

plays in education. They argue that all teaching is mediated by language, and thus all teachers are language teachers. Therefore, all teacher education programs need to equip TCs with educational linguistics, a construct that includes the linguistic and sociocultural knowledge needed to understand the language of school and of the students, and the processes of language development that impact learning for ELs. Teachers need a solid understanding of language, including phonemes, morphemes and syntax, so that they may understand the language of their disciplines and teach it to their students. Teachers with this knowledge can understand and explain why English spelling seems so chaotic, and they are better able to help their students to improve their writing. Teachers also need sociolinguistic awareness, in order to understand that there are different varieties of English, and although some are more congruent with the language of schooling, none is superior.

> In a society that is creating increasingly diverse classrooms, teachers are more and more likely to encounter students with whom they do not share a first language or dialect and a native culture. An understanding of linguistics can help teachers see that the discourse patterns they value are aspects of their own cultures and backgrounds; they are neither universal nor inherently more valid than other possible patterns. Without such an understanding, teachers sometimes assume that there is something wrong with students whose ways of using language are not what they expect. (Fillmore & Snow, 2000, p. 5)

Additionally, knowledge of the principles of first and second language acquisition helps promote language development. This knowledge, which the authors suggest may have seemed "utopian" at the time (p. 35), has been consistently lacking in the field. Reeves (2006) conducted a survey of secondary content area teachers' attitudes, with 78% having experience working with

ELs. Disturbingly, 48% of the teachers in this study were not interested in more professional development in working with ELs. Almost 40% believed that students should avoid using their first language in class, and that two years were adequate time to develop academic English proficiency, beliefs that run counter to research on language acquisition. However, there has been progress: a decade later the elements of educational linguistics are reflected in Massachusetts' SEI Endorsement (Landman, 2013), the WIDA English language proficiency standards and assessments (WIDA Consortium, 2012), and the edTPA, a standardized assessment of teaching (edTPA, 2013). Dictating these proficiencies in standards does not necessarily mean they will be enacted, or that they will improve learning. However, it does substantiate the assertion that these competencies are central to teacher's knowledge of their disciplines.

Other researchers who agree on the necessity of educational linguistics and have sought to apply it to teacher education have developed Fillmore and Snow's concept of educational linguistics. Bunch (2013) agrees that a foundation in language is important for mainstream teachers in order work with ELs, especially given the challenges of the Common Core standards. However, he questions how well a background in linguistics can be addressed in teacher education/preparation, given the many competencies teacher candidates need before entering the classroom and the already intensive demands of teacher education programs. Instead, he suggests contextualizing educational linguistics within the teacher candidates' intended subject area. He elaborates on Shulman's concept of pedagogical content knowledge (1987), which adds knowledge of one's discipline into the base pedagogical knowledge of teaching. According to Bunch, if mainstream teachers are to work effectively with ELs, they also need pedagogical language knowledge (PLK), which expands pedagogical content knowledge and requires

teachers to focus on the language of teaching and learning found in their own discipline. In order to build PLK, teachers need to realize how academic language is structured and how it functions in the classroom, thus, "providing teachers with new *experiences,* along with analysis, reflections, and discussion about those experiences, is crucial for the development of pedagogical language knowledge" (Bunch, 2013, p. 307). This suggestion, that teachers need an opportunity to focus on the language of their discipline, is the primary focus of the Academic Language Project.

Lucas and Villegas' framework for linguistically responsive pedagogy (LRP) provides perhaps the most inclusive conceptualization of the knowledge and skills teachers need to know to work effectively with ELs. Their framework synthesizes elements of cultural competence, linguistic knowledge, and pedagogical skill. This model proposes that teachers must understand and apply essential principles of first and second language acquisition in order to comprehend the ways in which language acquisition impacts academic performance. This framework details four types of language knowledge and teaching skills, and three orientations. The skills include a) the ability to learn about ELs' language background, experiences and proficiencies, in order to understand that ELLs are not a homogeneous group; b) the ability to identify the language demands of academic language in the classroom; c) the ability to scaffold those language demands for ELs; and d) knowledge of second language acquisition. Knowledge of second language acquisition includes the theories of comprehensive input and the affective filter (Krashen & Brown, 2003), a focus on linguistic form (Schleppegrell, 2004), and Cummins' (2008) research on transfer of first language literacy and the distinction between BICS and CALP. The orientations included in the LRP framework are essential, as they require teacher educators to do more than simply provide teacher candidates with more methods; teacher

candidates must develop a deeper understanding of the sociocultural issues involved in U.S. bilingual education. Such orientations require comprehension of the interrelatedness of language and culture and the ways that the power structures of school have excluded cultural and linguistic minorities. If teachers are not aware, they can unwittingly play a part in the hegemonic process of domination. Teachers need the sociolinguistic awareness to realize that the achievement gap between ELs and mainstream students is a failure of the system, not of the students. The marginalization of non-White students in US schools is not a passive process; it is a manifestation of the ways that business as usual in U.S. schools reifies and reproduces values that support the status quo (Bartolomé, 2010), and there is no quick and easy methodological fix that will address such systemic discrimination (Harper, de Jong, & Platt, 2008).

> Hegemony in American schools results, more specifically, from institutionalized social relations of power that are asymmetrical, and therefrom unequally privilege students from the dominant culture over students from subordinate cultures. (Darder, 1991, p.35)

Sociocultural awareness asks teachers to reconsider the Horatio Alger myth that anyone can succeed if they just try hard enough in the purported meritocracy of U.S. schools. These myths masquerade a system of education that places cultural and linguistic minorities at a distinct disadvantage, legitimizing that "a particular set of power relations as legitimate and eminently just and fair" (Darder, 1991, p. 35) and using dissimulation in the public rhetoric to conceal this domination of subordinate groups. Teachers with sociocultural awareness are better able to see through this pretense and avoid perpetuating it.

The full array of knowledge and skills in the LRP framework is the most comprehensive presentation of the skills that mainstream content area teachers must know to help ELs develop

academic language proficiency. These competencies are an ideal towards which teacher education can aspire, and many of the sociocultural aspects of LRP are present in the theoretical framework of the Academic Language Project. However, given the brief contact time with students and the broader array of teacher education services into which it fits, the ALP focused on developing what Bunch (2013) calls pedagogical language knowledge: the ability to shelter instruction, and to scaffold student development in academic language. The next section of this review will focus on defining the concept of academic language as it is used in the literature, and as it was operationalized in this project.

What is the language of schooling? The literature agrees that teacher candidates need knowledge of linguistics, so that they may better understand the language of schooling and support all students as they develop their proficiency in this academic language. But what is academic language? Broadly speaking, academic language is part of the overall language proficiency that students need to perform successfully in school. It is the style of language typically used in academic settings to present and demonstrate mastery of knowledge, and it differs somewhat in each discipline. In all cases, AL becomes more difficult as grade levels increase. But how can AL be operationalized, so that it may then be integrated into coursework of teacher preparation programs? Should it be defined by analyzing its linguistic units? Or is it best understood by looking at the functions for which it is used? Or is it best understood by examining the context in which it is used? The following section of this review will consider how the concept of academic language has been defined in the scholarly literature.

Sociocultural Approach. Sociocultural linguistics is the study of language in its sociocultural context and the norms and expectations of the context that shape language. Hymes (1972) critiqued innatist linguistic theory, which concerned itself with the purest form of the language, as spoken by an ideal speaker without limitations of memory, distraction or errors. This view held language competence and performance "in abstraction from sociocultural features," and in doing so overlooked crucial aspects of actual competence. "Concepts that are unquestioningly postulated as basic to linguistics (speaker-listener, speech community, speech act, acceptability, etc.) are, as well see, in fact sociocultural variables," (p. 59). Treating these elements as ideal forms ignores the social and contextual factors that impact whether or not a speech act is judged as successful by members of the language community. Thus, the investigation of academic language looks not only at the language of text books, but also at how the environment of school shapes the language of school and how modality, audience, and content shape the speech act.

Any attempt to define academic language must begin with Cummins' early theoretical work (1979, 1984). This work formulated two contrasting styles of communication demanded of bilingual learners: the fluency needed for Basic Interpersonal Conversational Communicative Skills (BICS) and the more challenging Cognitive Academic Language Proficiency (CALP) that entailed listening, speaking, reading, and writing in ways that school requires. CALP is more linguistically challenging than BICS. For example, a student having a conversation is employing BICS, and can rely on extralinguistic supports (e.g., intonation, body language, facial expressions, or pointing to a shared referent). However, the CALP found in a science textbook provides less contextual support for students, i.e., no shared referents and no interpersonal cues, and so its language must be more specific. It employs the language of higher-order thinking

skills, and it utilizes specialized vocabulary and lower frequency, Greco-Roman words. These two proficiencies develop along very different timelines: immigrant students may become fluent in BICS in two years, while CALP has been shown to take from 5-7 years on average (Cummins, 2008). This is an important finding, and one that has had critical policy implications for bilingual education. While criticized for portraying a complex, multivariate process as a binary one (Scarcella, 2003), the BICS/CALP distinction helped dispel the concept of a global language proficiency, accounted for the different outcomes for ELLs, and began the analysis of how everyday conversational styles differ from the register of academic language.

Establishing academic language as the language of schooling generates a dualism: the language of school, but contrasted to what? The language of home? The language of students? The language of play? This distinction must be made explicit and considered in the frame of larger sociopolitical power dynamics, to examine how power and privilege shape education. If academic language is the language of success, then whose language is it? In comparing home and school language styles, we find similarities in some communities and differences in others. A major topic in sociolinguistics has arisen from the anthropological work that examines home-school mismatch and attempts to identify how the language of school in the U.S. reinforces the privilege of White middle- and upper-class students. School in the U.S. requires its own language style and reflects language practices found in many middle-and upper-class families. Research reveals that certain interactional styles found in middle-class homes, e.g., being explicit for distinct audiences and extended talk on a focused topic, align with the expectations of formal schooling, and these family ways of speaking prepare children for success in school (Heath, 1983). Minority language speakers, however, are less likely to have encountered these academic speech acts (Cummins, 2008). Thus, school reflects and reproduces the social order of the

dominant class (Bartolomé, 2010). Reifying the dialect of the dominant White culture in the values and practices of school reinforces White privilege and marginalizes children from ethnic and linguistic minority groups (Bartolomé, 2002; Gee, 2008).

While teacher educators cannot immediately hope to redress the power dynamic, they can help prepare teacher candidates to teach within the existing power structure without unwittingly recycling its prejudices. Many teacher candidates lack the awareness that success in school means success in the culture (Bartolomé, 2010), identity (Gee, 2008) and language of the dominant culture (Lucas & Villegas, 2011). Thus, the Academic Language Project has also worked to develop what Lucas and Villegas calls "sociolinguistic consciousness" (2011). Teacher candidates must comprehend how language factors into the achievement gap. If students are to perform on grade level with peers, in productive as well as receptive language abilities, they need to be able to master the register of academic language, a register that differs from everyday spoken language and is learned in the classroom (Schleppegrell, 2004). Teacher candidates need to be reminded that although this register of English is the classroom norm and essential to academic success, it is not inherently superior to dialects their students already speak (Lucas & Villegas, 2011). The goal is not to fix students' broken dialects; the goal is to add new ones that are more appropriate to the context of school (Gee, 2008; Valdés, Bunch, Snow, & Lee, 2005). Thus, teacher education must first foster the ideological clarity that allows teachers to see the power structure that shapes schooling and marginalizes non-White minority groups and their own role within it (Bartolomé, 2010). Teacher education must equip teachers to teach the linguistic codes of school, so that *all* students have a better chance to succeed within this asymmetrical power structure.

Discourse analysis holds that specific communities have their own ways of using language, and as Cummins (2008) has shown, academic styles of language differ from conversational language. The language of school is not unitary: each discipline is a community with its own language practices, cultural models, narrative practices, and accepted theories (Gee, 2008). Equitable education requires making the language demands of school explicit, rather than assuming that all students have these literacies. Once students are taught the discourse practices of each community, they can apply them in ways that promote deeper engagement and higher-order thinking. In the attempt to define academic language, discipline-specific analyses have examined the language needed for success in the context of each content area. It should be noted that, as a sociolinguistic analysis, most focus on only one half of the picture, the culture of school, without attempting to investigate the culture that the students bring with them. A true sociocultural analysis would help teacher candidates examine discourse mismatches. However, given that teacher candidates are not yet in a classroom, they do not know the background of their students; furthermore, ELs are not a homogeneous group (Lesaux, 2006). Thus, it makes sense to teach awareness of the language of their subject area, and ways that it can be taught.

Linguistic Approaches. Gaining proficiency in a discourse requires full understanding of its elements. Much of the literature on academic language seeks to analyze its lexical, structural, and organizational features and correlate them to the language functions for which they are used. Analysis of the structure of academic language and its role in education will employ two similar but distinct terms: the functional approach, and systemic functional linguistics (SFL). Both consider the linguistic elements of language found in specific social contexts. Both operate from the idea that there is no single academic language: the practices and knowledge of each discipline shape (and are shaped by) the language inherent to it. Each discipline has its own

differences, but the disciplines also share certain core features. Systemic Functional Linguistics differs from other functional approaches in the three major elements at the heart of its analysis, called metafunctions: the *field*, which includes the topic and the grammar involved in it; the *tenor*, or the social roles of the participants; and the *mode*, the channel of communication (whether spoken or written, dialogic or monologic, etc.) which constrains interactivity, spontaneity, and communicative distance (Halliday & Matthiesson, 2004). Research in the functional approach is more easily applied to the classroom (Janzen, 2008), whereas SFL can be technical and abstruse, often off-putting to teachers. However, SFL provides a generative framework from which to analyze the linguistic elements needed to successfully employ the register of academic language. This review will consider literature that draws on both approaches.

Functional approach. Analyzing the linguistic demands of academic language requires deconstruction into its constituent parts. The basic elements of language are phonology, morphology, lexicon, syntax, and semantics. In order to help teacher candidates understand the linguistics demands of academic language, the ALP focused on language at three levels: morphological, lexical, and syntactical. This review of the literature will follow a similar construction by analyzing conceptual research and intervention studies that target the morphology, vocabulary, and syntax of academic language. Literature focusing on text-level discourse features will also be examined.

Morphology. Whereas phonemes like the voiced bilabial stop of the /b/ sound, the voiceless labiodental fricative /f/, are the basic units of sounds in a language, morphemes are the basic units of meaning. Morphology identifies the analysis and structure of morphemes. Morphemes may be root words or affixes that are assembled like Lego blocks to make up words.

For example, *swim* has one morpheme, but *swimmer* has two, since the addition of *–er* turns the verb into a noun. Morphological awareness is an important measure of reading skills, especially as children progress through the grades (Kuo & Anderson, 2006; Nagy & Scott, 2000). Such awareness can help readers, especially those who are struggling to read at grade level, in two ways (Kieffer & Lesaux, 2012): first, it can help readers decode unfamiliar words by breaking them down into their constituent morphemes; second, by using morphemes to build new words. In ALP trainings, the point was often made that one of the longest words in the English language, *antidisestablishmentarianism,* is just a heavily inflected form of the word *establish*, and a morphologically adept reader can parse out the affixes and trace the changes each one makes in part of speech. This aspect of derivational morphology, the ability to find the root word, is called *relational knowledge* and helps learners decode new words in context, a skill that is particularly important when reading sophisticated school texts. The second way that morphological awareness can help is by allowing readers to use known morphemes to build new words, either by joining affixers and a root word, or by joining root words together to form a compound noun, like *doorknob*. So, the root word *judge* can become *judged, judgment* or *prejudiced*. This aspect of morphological awareness is called *syntactic knowledge*, which is important in both understanding and writing academic text.

Vocabulary. Although morphological awareness is an important skill, it is rarely considered in isolation from effective vocabulary teaching. A quasi-experimental study (Kieffer & Lesaux, 2012) examined the impact of an academic language intervention on the morphological awareness of 6th graders with below-average reading skills. The 18-week intervention targeted general-purpose academic words and 13 high-frequency derivational suffixes. In only 7.5 hours of explicit instruction on morphology, students showed a significant

increase in the relational aspect of morphological awareness for all learners; furthermore, the language minority students also showed an increase in syntactic aspects.

While there is a dearth of morphology-specific research, there is an abundance of literature dealing with effective vocabulary instruction for ELs. This is no surprise, as vocabulary is the heart of language. As Wilkins (1972) notes, "the fact is that while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p. 111). Readers need to understand the words in front of them before they can derive meaning, and the stronger the vocabulary the better the comprehension. Nation (2006) calculated that learners needed to understand 98% of the words in a text in order to comprehend the text. The challenge of vocabulary is particularly salient in academic English, since each discipline employs specific technical vocabulary that can be challenging even to native speakers (Beck & McKeown, 1985; Schleppegrell, 2004; Zwiers, 2008).

Proficiency in vocabulary plays an important part in reading skills. Proctor, August, Carlo, and Snow (2005) analyzed how distinct component skills of reading contribute to reading proficiency in second language learners. This correlational study analyzed Spanish-English bilingual learners in upper elementary classes, measuring reading comprehension, listening comprehension, fluency, alphabetic knowledge, and vocabulary level. Using structural equation modeling, it analyzed how each component contributed to reading comprehension and found that, given adequate decoding skills, vocabulary accounted for an enormous part of the variance in listening comprehension, an a large impact on reading comprehension. Carlo, et al., (2004) found that a 15-week targeted intervention that focused on building metalinguistics awareness also had an effect on word mastery for upper elementary ELs and NES, and a smaller but still

significant effect on reading comprehension. Taken together, these findings show the primacy of vocabulary knowledge in reading comprehension, for ELs and for native English speakers.

How do we decide which words to teach? Beck and McKeown (1985) originated a Tiered System of Vocabulary Instruction that sorted word into three tiers: Tier One words are the basic words that children learn very early, and that usually do not need support in mainstream classes (e.g., *clock, baby, happy*); Tier Two words are more complicated, but are still high-frequency words that appear across disciplines (e.g., *coincidence, absurd, industrious*); and Tier Three words are lower-frequency, discipline-specific words (*isotope, mitochondria, allele*). Tier Three words have historically been supported by instruction. They are the words in bold in the textbooks, the terms that are included in learning standards and content area assessments. Education is well tooled to teach Tier Three vocabulary, and so are content area teachers. They are so vested in their content area, that when asked to focus on linguistic demand they tend to focus solely on Tier Three words (Bruna, Vann, & Escudero, 2007). Learners need more support in developing their Tier Two vocabulary since these are the words that mature language users employ to construct meaning in academic discourse. Beck and McKeown's (1985) system has become shorthand in education, as teacher education and professional development have focused on how to help students learn Tier Two words. Of course, this is not to deter teaching Tier Three words. There is clear evidence that knowledge of content-specific academic vocabulary correlates with increased comprehension within that discipline (Cervetti, et al., 2006; Taboada, 2011). But as readers struggle to overcome vast disparities in vocabulary (Hart & Risley, 2003) and grade-level reading (Fry, 2008; Slama, 2011), strategic vocabulary instruction can optimize the progress made in the span of a K-12 career.

Zwiers (2008) developed a different paradigm for examining vocabulary. He compared the development of academic vocabulary to building a brick wall. The bricks are the content-specific terms and the mortar is composed of general academic words. There is no doubt as to the importance of learning Tier Three words, but without Tier Two words, "there is a danger of overfocusing on big words. If we simply pile bricks up to make a wall—overdo vocabulary quizzes and dictionary work—the wall will fall" (p.22). Mortar words are more characteristic of academic English than of everyday speech. They are often synonyms of more common, spoken forms of a word (e.g., *require* instead of *need,* or *maintain* instead of *keep*). Many coherent and logical sentences rely on mortar words like *therefore, however,* and *whereas* to connect their constituent parts. All parts of speech can contribute mortar words, including prepositions like *behind, between,* and *among,* which are necessary for precise description to distant audiences. Mortar words include pronouns used to establish internal referents. They include vocabulary needed to perform higher-order thinking and to perform academic tasks: *estimate, analyze, differs,* and *outweigh.* Without a good understanding of mortar words, learners cannot understand the organization of text, or fluently employ academic English. Despite their importance, mortar words are often not taught explicitly, despite the fact that they are crucial and often quite abstract. The meaning and usage of the word *whereas* is more abstract, and perhaps more difficult to understand, that a Tier Three word like *torus,* yet it is less likely to be explicitly defined and taught. There is a clear need to better support all learners as they develop academic vocabulary.

Coxhead (2000) established the definitive list of academic words used in linguistic corpus analyses. The study examined over 3.5 million words in existing texts looking for the most common words. Coxhead echoes Zwiers's (2008) opinion on how easy it is to overlook

academic words, since they "are not highly salient in academic texts, as they are supportive of but not central to the topics of the texts in which they occur" (p. 214). This study was designed so that teachers and students learned vocabulary strategically, by focusing on commonly used but advanced words (i.e., Tier Two). After sorting out the first 2000 most common words, which are almost entirely Tier One words, Coxhead found 570 word families that were very common in academic texts, but not in fiction. These words became the Academic Word List (AWL), and they account for 10% of the words in the academic texts analyzed and, when taken together with the first 2000 words, cover 86% of the academic texts. By contrast, the AWL only covered 1.4% percent of fictive texts, indicating the proscribed academic discourse style of non-fiction texts. The AWL helps to describe the actual substance of academic language. At the time, this list was targeted for ESL learners, particularly those in English for Academic Purpose (EAP) courses, but it can be readily applied to teaching the register of academic English to all learners.

Thus, in terms of academic success, all vocabulary is not equal. Townsend, Filippini, Collins, and Biancarosa (2012) examined the impact of academic word knowledge on the academic achievement of middle school students, as measured by their performance on state standardized tests in math, reading, science, and social studies. The study tested students' overall vocabulary and general academic vocabulary. Using linear regression, overall vocabulary knowledge explained the greatest part of the variance, followed by demographic factors of language background and SES. Academic word knowledge accounted for a small but distinct portion of the variance: between 2% to 7%, and was notably higher in math and reading.

Syntax. With the case for academic vocabulary made clear, this review will examine literature focusing on the syntactic structures that characterize academic language. Academic English is characterized by longer sentences with more advanced grammar than everyday spoken

English. Because of the complex nature of the subject areas, the academic register employs more embedded clauses, passive voice, use of modals, multiples, tenses, and dense nominalization (Schleppegrell, 2006; Zwiers, 2008). This is not because those who write academic texts are grandstanding; it is a result of the complexity of the subject matter that needs to be conveyed.

For example, Schleppegrell (2004) analyzed the linguistic skills needed to adopt the authoritative stance of science. Writers need to take up the passive voice and use clauses that place the concept under study in the object position (*It was observed…, Results were generated…*). They would also need to use multiple tenses as they explained their method: past tense and passive voice for generating hypotheses and conducting experiments, generalized present tense for reporting results, and future tense for deriving implications, and all of these are hedged by modals.

The density of academic text is often accomplished by packing a lot of information into a noun clause through agglutinative morphology. This process is called nominalization and serves several useful functions necessary in the academic register. It allows multiple concepts or things to be combined into one object, for the same noun to be referred to in different or evolving ways, and for verbs or even whole clauses to take the subject or object position in a sentence (Fang, Schleppegrell & Cox, 2006). It is necessary to establish an extended discussion of a complex and abstract concept in a medium where there may be no shared reference, but it makes for challenging reading, and does not reflect the ways that language tends to be used in everyday interactions. This relatively simple science text illustrates the point:

> Erosion is the process that breaks things down. As far as we're concerned, erosion is the breakdown of the continents and the land around you. The overall effect of breaking down and weathering the land is called denudation. Denudation is the

> process of erosion. In nature, large things are broken down into smaller things. Boulders become sand. Mountains are rained on and become hills. The pieces of the mountain become smaller pieces and go down the sides of hills. Weathering and erosion always happen in a downhill direction. (http://www.geography4kids.com/files/land_erosion.html)

The authors use nominalization to introduce new information then build on it. For example, the (idiomatic) verb phrase *breaks things down* is nominalized as *the breakdown* and as *the effect of breaking down and weathering*, and then repackaged and carried forward as part of the meaning of the noun *denudation*.

This example from Math shows long, dense noun phrases employing nominalizations (Schleppegrell, 2007):

> The length of the hallway is 5 ft. longer than the width and the area is 50 square feet. What are the dimensions of the hallway?

The subject, *length,* is described in the predicate using a long noun phrase: *5 ft. longer than the width.* The length, width, and area are then combined into the noun *dimensions.* Another example below illustrates how a dense noun phrase can obscure the syntax:

> The length of a rectangle is 8 ft. longer than its width, which has the same dimension as the side of a square. If the area of the rectangle is equal to 160 square feet more than the area of the square, what are the length and width of the two rectangles?

The second sentence is a conditional sentence, whose predicate puts a 12-word noun phrase in the object position: *equal to 160 square feet more than the area of the square.* This sentence requires extensive parsing just to find the main verb, since the compliment of this verb *to be* has

four dependencies. Of course, conditional sentences are common in other disciplines as well. Consider the following example from history: *If Columbus had landed in South America instead of the Bahamas, Brazilians would speak Spanish today.* If students were unfamiliar with unreal conditional in the past, they might miss the hypothetical nature of this statement and erroneously believe that Columbus actually landed in South America.

Systemic Functional Linguistics Approach.

Text-level features. The field of systemic functional linguistics has helped move the concept of academic language beyond the word- and sentence-level, to examine text-level features. The concept of SFL was not mentioned in the training, although research grounded in this paradigm was incorporated as part of the Sentence-Level features of the ALP Beginning Framework for Teaching Academic Language (Achucar, Schleppegrell, and Oteíza, 2007; Fang, Schleppegrell, and Cox, 2006; Schleppegrell, 2004; Schleppegrell, 2007). While systemic functional linguistics was not an explicit part of the academic language for this project, any review of the literature on academic language at this point must consider the frame of systemic functional linguistics. Subsequent versions of this training, with other researchers and principal investigators, have explicitly incorporated elements of the systemic functional linguistic framework for teacher candidates.

Language does not exist in isolation, and the context of the communication affects its form. This is a central assertion in the field of Systemic Functional Linguistics, and one that requires a rethinking of how writing is taught. Language is an act of assigning random sounds to represent abstract thoughts, in order that they may be conveyed from one mind to another. Writing takes this one step further, changing these words into orthographic representations, so that they may be presented to remote audiences. Children learn to write out of their experience

with oral language, but the act of writing is very different from the act of speaking, principally because the author and the audience do not usually engage the text at the same time, and this shapes the communication. Different contexts require different linguistic choices, constituting different varieties of language, different discourses known as *registers.* As mentioned earlier in this chapter, SFL looks at the topic in question, and the situation and discipline in which the communication takes place (the *field*), the relationship between the author and the audience (*tenor*), and the method of communication, whether oral or written (*mode)*. In short, the subject, the audience, and the mode determine the register (Schleppegrell & Go, 2007). There are recurring forms of text in Academic English with specific organization and features, called *genres.* A fictional narrative requires different grammatical and organizational features than a persuasive argument, personal recount, biography, or a procedural report (Martin & Rose, 2003).

SFL allows teachers to analyze the linguistic needs of the registers necessary to succeed in academic discourse (Brisk, 2012; Schleppegrell & Go, 2007). SFL and genre-based pedagogy in general, are a paradigm shift in education, one that is centered on

> epistemological conceptions regarding the relationship between text and context and pedagogical issues regarding how best to apprentice newcomers to disciplinary ways of knowing and using language and other multimodal representations (Gebhard & Harman, 2011, p. 47).

This is not another quick methods fix, but rather a way of analyzing language that serves as a "rejection of purely behavioral and psycholinguistic conceptions of language and language teaching" (Gebhard & Harman, 2011, p. 47). It forces pedagogy away from drill and practice on isolated elements of language and instead on explicit attention to language and metalinguistic knowledge. However, a paradigm shift does not come easily.

The California history project conducted a professional development series with history teachers designed to teach them functional linguistics metalanguage and analysis skills. This multiyear project, helped teachers examine the way that the language of history texts constructs knowledge, and to help them to engage students in richer discussions about content (Achugar, Schleppegrell, & Oteíza, 2007). Participating teachers reported feeling better prepared to help students in their writing. Subject area teachers needed help moving beyond a focus solely on surface grammar, and they needed content-specific examples of the linguistic registers employed in their disciplines, a finding that informed the ALP.

Brisk (2012) investigated how instruction that focused on grammatical person (first, second, or third) affected bilingual elementary students' ability to successfully employ the registers of specific genres. The results for these early elementary writers were hopeful, but showed only marginal effects. The writers attempted to write in various genres, but were unable to maintain them. For example, procedural instructions might give way to narrative recount. The young writers were still developing the ability to distance the writer from the author using the third person. However, the authors assert that "SFL theory proved to be a useful tool for understanding student writing in concrete ways that can easily translate into improved instruction" (p. 466). SFL-based instruction allows a focus on genre, field, tenor, and mode, and writing practice that employs various genres will give students practice on employing them. Their writing then serves as formative assessment, informing and revising further instruction.

Aguirre-Muñoz, Park, Amabisca, & Boscardin (2008) propose that, in an era when sheltered instruction for ELs is increasingly common, teachers need to focus on linguistic form in order to help all learners develop the proficiency in academic language needed to achieve high standards. Unlike traditional grammar instruction, a SFL approach allows teachers to focus on

the lexical and grammatical features of academic genres, and "over time, this consistent focus may assist ELLs build stronger connections between key linguistic elements characteristic of school-based genres" (p. 317). It is the circle of praxis, where epistemology meets pedagogy.

> Command of written language as a special style of discourse has a long developmental trajectory' (Berman & Nir, 2010, p. 183) that starts in the upper elementary grades, continues through middle school, and culminates in high school. (Brisk, 2012, p. 466)

It will take time to teach students to understand and use the register of academic English. Similarly, it will take time to equip teachers to use SFL. Aguirre-Muñoz, et al (2008) report that only a third of the middle school teachers in their study implemented SFL lessons to a high degree. While many teachers were able to identify different types of verbs and present expanded noun phrases, conjunctions, and transitional expressions, they were less able, and thus less likely, to instruct students on the tenor of academic texts. It takes supportive institutions to allow teachers to revise their practice, and professional development aimed at supporting them when they do. Proponents of genre-based pedagogy state that simply teaching to the test will not close the achievement gap for ELs. They recommend that

> teachers learn to critically unpack how academic language works in the genres they routinely ask their students to read and write in school; expand the range of linguistic choices available to students in communicating for particular purposes and audiences; and support ELLs in using academic language to accomplish social, academic, and political work that matters to them. Admittedly, this is a tall order for teachers, principals, teacher educators, literacy researchers, and policymakers. (Gebhard & Harman, 2011, p. 46)

As these studies have shown, some will struggle with such an approach, as it requires a new way of looking at text. Teachers need sufficient pedagogical content knowledge (Bunch, 2013) of the syntactical functions of language common to their disciplines if they are to be able to teach them to students. As the ALP has shown, teacher candidates struggle with this knowledge. They may be proficient in the register of their discipline, but not have the linguistic background to make its features explicit to ELs.

The ALP did incorporate some elements of SFL in its examination of how the discipline, audience, and form of communication shape discourse at the sentence and text level, but stopped short of using the terms field, tenor, and mode. Future attempts to raise linguistic awareness in teacher candidates should incorporate genre theory more explicitly, despite its conceptual challenges.

Investigating Academic Language

The following section reviews studies that investigate the academic language in four major content areas: science, math, history, and English language arts. Because each of these major content area disciplines has its own discourse, literature in each area will be reviewed separately.

Academic language in Science. The discussion of discipline-specific discourse practices begins with science, a field that employs specific vocabulary, a wide range of grammatical structures, and unique discourse structures. The language practices of science are process-oriented, e.g., used to describe the experiments that test theories. Scientific discourse is a tool for conducting experiments and for constructing knowledge, rather than simply the means of conveying information; the language of science reflects the content, but it also structures how problems are chosen, articulated, investigated, and reported. It shapes the definition and

construction of knowledge and thought (Halliday, 1989). It also attempts to classify, and to explain complex and detailed interrelationships, and this entails complex subject clauses, embedded clauses, nominalizations, and the passive voice (Gee, 2008).

Once students are taught the discourse practices of science, they can apply them in ways that promote deeper engagement and higher-order thinking. For example, the *Cheche Konnen* project helped enculturate adolescent Haitian Creole speakers into the discourse of scientific literacy, i.e., the ways that the discipline of science uses language to analyze problems and construct meaning. By involving them in collaborative inquiry, the project moved beyond low-level literacy and computational instruction. Rather than focusing solely on content area vocabulary, students were encouraged to "do science" for themselves, to appropriate the discourse of science, and employ it in authentic investigations. In the course of the school year, learners in the bilingual Basic Skills class exhibited a significant increase in content knowledge, hypothesis production, and experiments conducted. The students were able to formulate their own hypotheses, design and conduct experiments, and evaluate the results (Rosebery, Warren, & Conant, 1992).

Bailey, Butler, LaFramenta, and Ong (2003) analyzed the language functions in ten upper-elementary, mainstream science classes containing ELs using Chamot's (1996) taxonomy of academic language functions: explaining, informing, describing, classifying, and evaluating. Bailey, et al. examine how oral and written interactions in the classroom employed these functions, along with the academic rhetorical structures (e.g., o*n the other hand*) and registers of vocabulary used. Their analysis of teacher talk found that the language functions of explanation and description involved short declarative sentences, and the language function of evaluation involved short interrogative questions. Classifying (called comparison in this case) employed

short descriptive sentences, but also relied on parallel structures, similes, and references to concepts taught previously. However, when teachers began to paraphrase, they used a wide variety of structures. Although teacher talk employed mostly simple structures, texts did not. Texts (and tests) employed longer sentences with more complex structures and embedded clauses. For example, this sample uses multiple referents in the same sentence: “Month after month the moon keeps orbiting Earth, even as Earth is orbiting the sun." Students need exposure to a variety of structures if they are to develop the proficiencies they will need to succeed.

While there is a growing body of research on how to approach the teaching of science vocabulary (Nagy & Townsend, 2012), Lee, Quinn, & Valdés (2013) believe that instruction for academic language in science needs to move beyond analysis of its structural elements (i.e., phonology, morphology, vocabulary, and syntax) and move towards language for communicative purposes. According to these authors, the Next Generation Science Standards and the Common Sore State Standards do not describe specific fluency standards for students, but they do require students to use English for increasingly complex purposes, e.g., *argue from evidence*, or to *obtain, evaluate, and communicate information*. Lee, et al., take a sociolinguistic approach to the discourse practices, drawing on Gee (2008) and Halliday (1989). Scientific discourse is an elaboration and extension of everyday discourse, and Lee, et al. (2013) propose that classroom practices can bridge the gap between the two registers. The authors carefully catalog the scientific tasks that students are asked to perform in class, and they list the receptive and productive language demands of each task. This list examines the modalities in which students are to perform (e.g., presentation, small group communication, reading and producing formal written communication, etc.), and the registers employed (e.g., colloquial, classroom, and disciplinary language and conventions). Many would argue that these scientific tasks, modalities,

and registers have specific structural features that benefit from direct instruction. Schleppegrell & Achugar (2004) clearly state that content-based instruction (CBI) should not focus on structural elements to the exclusion of communicative intent, but that CBI

> sees how the linguistic features of disciplinary texts construe particular kinds of meanings. This makes a focus on language central to the teaching of disciplinary content. (p. 70)

Despite its departure from the common focus on linguistic features, Lee, et al., (2013) is notable because it "highlights what students and teachers do with language as they engage in science inquiry and discourse practices" (p. 231). This connects the sociolinguistic approach with the CCSS themselves, which clearly state outcomes but do not prescribe instructional practices to attain them (CCSSO, 2010).

Academic Language in Math. The academic language of math presents lexical, semiotic, and syntactic challenges. Everyday words like *power, area,* and *plane* take on very different meanings and become surprise Tier Three words (Zwiers, 2008). Fluency in math requires the ability to switch between symbols, visual representations, and oral and written language that may employ more than one register (Schleppegrell, 2007). English Prepositions, which are dictated more by usage than by rule, take on much more importance, as words like *by, over,* and *into* are used to translate symbols into speech. Comparative and conditional statements are common (*If Reese has more apples than Sam…),* thereby increasing the language complexity.

Huang, Normandia, and Greer (2005) used a functional linguistics perspective to examine the discourse structures found in a high school math course. The authors used discourse analysis to analyze four months of class (February to May), looking at the kind of "knowledge structures" involved in particular math functions.

> When one engages in an activity of a certain knowledge structure (such as classification) in a certain context (like classifying types of functions in math), the linguistic features associated with that knowledge structure (i.e., vocabulary in relation to types of functions, syntactic structures signaling taxonomic or part–whole relations, discourse devices that connect sentences together to make the whole text, oral or written, coherent in expressing the content meaning, and the relevant thinking processes (e.g., classifying, categorizing, defining, etc.) are likely to be used. (p. 36)

The authors posit that articulating higher-level math content using these structures helps students reinforce understanding of higher-level knowledge. However, despite the teacher using the higher-level, theoretical structures (classification, principles, and evaluation), the students more often used the lower-level, practical structures (description, sequence, and choice) in classroom interactions with the teacher. Interestingly, when students were asked to assume the teaching role in small group work, they did employ the higher-level discourse structures. The authors conclude that exposure itself does not guarantee that these structures will transfer to the students' discourse; only when students get a chance to use these knowledge structures for themselves do they truly gain proficiency in the more advanced forms. There is an important implication here that needs to be underscored: students were able to used advanced structures when required, and thus classroom interaction needs to provide more opportunity for students to engage in genuine math discourse. Students do not get a chance to develop their ability to use advanced math knowledge structures in a class with interactions that are limited to what Zwiers (2008) called "display questions," where the teacher asks a closed question, with only one right answer, designed to "let or make students display their knowledge" (p. 103). Swain's (2000) Output

Hypothesis states that the function of using language "pushes learners to process language more deeply—with more mental effort—than input," (p. 99) and feedback from the listener helps them reprocess any errors in their articulation, or even their thinking.

Khisty and Chval (2002) conducted a yearlong investigation into scaffolding practices in two, fifth-grade math classes. Their sociocultural approach draws on Gee's concept of discourse communities (2008) along with Vygotskian scaffolding (1978) to analyze the ecology of the two classrooms created by student-teacher interaction draws on. They contrast two teachers: Ms. Martinez, who provided rich input in the discourse of math by speaking mathematically, and who, as the year progressed, guided students in using this discourse for themselves; and Ms. Tapia, who consistently and skillfully sheltered the content, but did not encourage students to discuss the work using the language of mathematics. This is the distinction between scaffolding academic language and merely sheltering content. In the end, both students could talk about math problems, but only Ms. Martinez' students could do so using the discourse structures of math. This research provides evidence of the value of rich input. However, it also speaks to the nature of scaffolding and the importance of output. While at the outset of the year, the teacher did most of the talking, by the spring, students were engaging in extended, proficient explanation using the language of math, with Ms. Martinez speaking much less.

These findings are supported by Schleppegrell's (2007) synthesis on linguistics and math instruction, which suggested these particular strategies for moving students from informal ways of talking into mathematical registers. She noted that, while students performed better when faced with sheltered math content they still need to learn the dense and technical language of math. She concludes that teachers need to be aware of the linguistic challenges of math, so that they may use oral language to mediate these challenges and apprentice students into its use. For

instance, Chapin, O'Connor, and Anderson (2003) provide five strategies, called "talk moves," for doing this in upper elementary classrooms: teacher re-voicing, student rephrasing for each other or applying their reasoning to that of their peers, prompting for further discussion, and using ample wait time

Academic language in History. History needs to portray events that have already happened, and thus by its nature relies heavily on language to depict these events. Since these events are in the past, it relies more heavily on past tense. History does more than simply relate facts chronologically; it also draws on them for interpretation and thus uses language of causation, interpretation, and perspective-taking (Zwiers, 2008).

The textbook is crucial to the study of history, and history texts tend to employ specific features that can be challenging. Schleppegrell, Achugar, and Oteíza (2004) examined the linguistic features of history texts, in order to develop an intervention aimed at promoting teachers' ability to explicitly teach these features to their students. They found frequent nominalization, reasoning that was condensed within the verb, and conjunctions that were ambiguous. The connections between cause and events is often not signaled by phrases such as *because* or *so*, but expressed within the same clause by a verb or verb phrase like *resulted in.* There is frequent use of appositives for technical terms, which makes for longer and more complex sentences that still may not provide adequate definition. They also propose that students learn to analyze texts from a SFL perspective to analyze what is happening, what roles the participants are playing (including the narrator), and how the text is organized. In this way, they can focus on the pertinent features of who, what, where, when, and why. The focus on what is happening in the text can help constrain the kinds of verbs used, as different organizational structures lend themselves to different connectors, e.g., chronological order would likely have

temporal adverbs, whereas explanation would entail connecting adverbs like therefore. The resulting intervention helped teachers to recognize these features, analyze how they structure meaning in the text, and feel more able to scaffold their students into doing the same (Achugar, Schleppegrell & Oteíza, 2007).

Schall-Leckrone and McQuillan (2012) embedded a focus on the language of history in a history methods course for teacher candidates, and analyzed their attitudes and preparedness to teach ELs. Academic language modules were infused in the course, employing a SFL focus on the language of history similar to that of Achugar, et al. (2007) described above. Teacher candidates analyzed how the text was organized, who the participants were, what processes they engaged in, and how these elements were connected. Additional modules were incorporated in year two of the study, with less explicit SFL terminology and more attention to the language. These modules focused on instances of nominalization and how nouns and pronouns establish chains of internal reference that, if traced, can help summarize the text. Modules also introduced sheltering techniques, including strategies for group work. While students in the first year recognized that history has a specific discourse, and that content area teachers are responsible for teaching it, they did not feel prepared to do so. Students in the second year, who received the modules on linguistic features of AL and scaffolding techniques, reported increased confidence in their ability to teach the language of history. This study is of particular relevance here, as the content of this intervention closely parallels that of the Academic Language Project.

Academic language in English Language Arts. It is difficult to find research that deals with academic language specifically in the context of English language arts (ELA). The first review of the literature returned no such results, and the results of additional searches dealt largely with state-level analysis of ELA standards, including the Common Core. It can be

difficult to disentangle the language of AL from the subject matter of ELA, and this may a reason why there is so little available. However, there is a discourse of the language arts classroom, and it is necessary to engage in the kinds of complex talking about language that occurs when studying literature.

Language arts standards indicate many analytical skills that students should master, such as interpreting, persuading, and analyzing cause and effect. Language is an essential scaffold for the complexity of these functions (Zwiers, 2008). However, many secondary English teachers may lack the linguistic skill to discern and address the underlying cause of a pattern of errors in an EL's writing (Walker, Ranney, & Fortune, 2005). Errors that appear to be distinct from each other in student writing may be a result of an incorrect assumption in his or her interlanguage. Thus, a student who misunderstood the (admittedly irregular) rules of gerunds and infinitives in English might produce these errors: *He stopped to like toys once he grew up*, and *I forgot paying the rent this month*. A teacher who does not realize that there is underlying pattern of error in using gerunds and infinitives will simply mark these both "awk," providing little useful feedback to the student. Standardized assessment data from Utah indicates the role of academic language in achievement in the ELA class, and the gap that ELs struggle to close. Tenth and 11th grade learners who performed well in AL measures were twice as likely to perform well in ELA measures. However, ELs were far less likely to perform well on the AL measures than their native-English speaking peers: 20-28% for ELs compared to 83-86% for NES (Crane, Barrat, & Huang, 2011).

What kinds of scaffolding techniques are suggested/effective? An understanding of the linguistic challenges of the discipline is a necessary but not sufficient condition for teachers to support ELs in their classrooms as these ELs simultaneously learn content and develop fluency in academic language. There is a danger of focusing solely on linguistics without considering how it affects the learners, thus creating PD that leaves teachers wiser about language but still unprepared to teach it. The frameworks for what teachers need to know (discussed above) all have an element of practical skills needed to apply this knowledge.

When it comes to teaching strategies for ELs in mainstream classes, two of the most common terms are sheltering and scaffolding. The two are often used together, and while they are conceptually similar, they are not the same thing. This review will employ the following distinction: *scaffolding techniques* are methods that help engage learners in academic language as they develop proficiency in it. They involve language practice and production by the student, with gradually increasing difficulty, within the context of the content area. *Sheltering techniques* are methods that help ameliorate the linguistic load of the content area for students who are still developing their English proficiency; while they include scaffolding, they focus more on teaching content than language.

***Scaffolded Instruction*.** Scaffolding has its roots in the work of Soviet psychologist Lev Vygotsky. Vygotsky (1978) proposed that our innate human capacity for reason is more fully developed through interactions with other, more experienced, individuals, and that signs, i.e., language, is one of the principle cultural practices used to do this. There is an inter-relationship between language and thought, both internally and externally. A more experienced other uses language to help learners extend their thinking further than they otherwise could. Learners acquire these ways of speaking and use them on their own, eventually internalizing them as an

inner voice, one that provides a supportive structure to cognition. Internally, thought mediates speech and allows it to be more complex and abstract. The external phase of this process, the social interaction, occurs in the Zone of Proximal Development (ZPD). This zone is the range of the student's current abilities. At the lower level, the actual developmental level, are the skills that the child can currently do independently; at the upper level we find the skills that she or he can do with the assistance of a more experienced other.

This assistance in the ZPD has come to be known as scaffolding, an apt metaphor since scaffolds are temporary structures, which elevate builders and allow them to perform at a higher level than they could without support. Just as scaffolding is temporary and will eventually be removed once the structure is complete, linguistic scaffolds like sentence stems and rephrasing are temporary supports that the teacher will gradually discontinue as students gain proficiency. Vygotsky differs from Piaget, whose retrograde constructivist principle stated that students' development could not be pushed beyond their current, organic level of development; i.e., development precedes learning. In Vygotsky's theory learning precedes development, allowing the possibility that human agency can accelerate development, and in fact might undergird it (Vygotsky, 1978). Teacher scaffolding in classroom practice involves support, guidance, and sequential tasks that gradually increase challenge while providing appropriate supports as needed (Hammond, 2001; McNeil, 2012; Pawan, 2008). Successful scaffolding may model the intended outcome, engage students' interest and support their motivation, break a complex task into manageable pieces, and draw attention to the most relevant part of the task. Scaffolds can be written, such as sentence stem or paragraph templates; they can also be oral as teachers rephrase student speech into academic registers and prompts the student to elaborate (McNeil, 2012).

Research on scaffolding in education has found that a successful scaffold has four elements. First, it should engage students in a "meaningful and culturally desirable activity beyond the child's current understanding or control" (Stone, 1998, p. 349). Second, the teacher should carefully assess learners' current level of proficiency related to the task, in order to calibrate the level of support needed. Third, it should provide a range of support. Fourth, supports should be temporary in nature, and fade over time.

Since the term was first used by Wood, Bruner and Ross in 1976 (Davis & Miyake, 2004) the concept of educational scaffolding has gathered wide recognition of its benefit in education (Duke & Pearson, 2002; Palinscar, 2003; Pawan, 2008; Pea, 2004). While not every teacher uses them, (Taylor, Pearson, Clark, & Walpole, 2000) scaffolding techniques have become so common that their efficacy is often not studied on its own, but as an element of another framework, such as Reciprocal Teaching (Palinscar, 2003) and the Sheltered Instruction Observation Protocol (Echevarría, Vogt & Short, 2008). Studies that have analyzed scaffolding by itself have shown that it helps EL students make progress in gaining control over the discourse practices of secondary mathematics (Khisty & Chval, 2002), science (Gibbons, 2003), history (Coffin, 1997), and English (Fung, Wilkinson, & Moore, 2003), in upper elementary (Kim, 2010; McNeil, 2012), and even in teacher education (Galguera, 2011).

Sheltered Instruction. The goal of scaffolding is more than simply assisting performance, because its end is "not simply helping to do but helping to know how to do" (Gibbons, 2003, p. 250). Sheltered instruction, on the other hand, might rephrase this goal as helping students *to do* while they are learning *how to do*. Sheltered instruction methods allow students in mainstream classes to have access to the core curriculum while they are still developing their proficiency. It is the result of the trend towards immersion language policies in

the US, which are geared towards moving students into mainstream classes as quickly as possible. Since classrooms in the U.S. are becoming more linguistically diverse, more students with limited proficiency are being placed in mainstream classes; thus, and more content area teachers need to learn how to shelter instruction (Bunch, 2013; Enright, 2010; Lucas & Villegas, 2011). Although it may be called by many names, Sheltered Instruction (SI; Echevarria, 1995), Sheltered English Immersion (SEI; Clark, 2009), or Specially Designed Academic Instruction in English (SDAIE; Genzuk, 2011) involves employing a variety of teaching techniques to help support English learners, such as building on background knowledge, providing comprehensible input, and structuring lessons to provide a variety of materials, methods, and modalities.

The Sheltered Instruction Observation Protocol (SIOP) is a common professional development framework that originated as a tool for administrators to evaluate teacher ability to shelter instruction, but has since become a framework for teachers in all content areas to plan instruction that will support ELs in gaining access to content knowledge. The SIOP model has eight components, each of which has essential features that define how it is operationalized in the observation protocol (Echevarría, Vogt, & Short, 2008):

1. Lesson Preparation: the lesson includes language objectives; the lesson is age and grade appropriate, and uses supplementary materials. Texts are adapted, when necessary, and there are relevant activities that allow students to practice language in the context of the subject matter.
2. Building Background: Instruction is explicitly linked to students' background knowledge and to past learning.
3. Comprehensible Input: Speech is appropriate for students' proficiency level, a variety of techniques make concepts clear, and academic tasks are clearly explained.

4. Strategies: Teacher uses scaffolding techniques to assist and support student understanding and a variety of questions aimed at promoting higher order thinking.
5. Interaction: There is ample opportunity for students to communicate with the teacher and with peers; there is sufficient wait time and L1 support when needed.
6. Practice and Application: Students have access to hands-on materials to practice and apply the new knowledge, and activities integrate all modalities.
7. Lesson Delivery: The lesson supports content and language objectives, is well paced, and promotes students' engagement.
8. Review and Assessment: The lesson includes a comprehensive review of new material, feedback to students, and ongoing formative assessment.

The SIOP model is used in many schools and districts across the country, and there are a number of empirical studies that investigate its effectiveness. McIntyre, et al., (2010) found an increase in reading scores for students who had participated in SIOP classrooms, relative to students who had not. Echevarría, Short, and Powers (2006) conducted an intervention study in three urban, ethnically diverse districts. After a year of receiving SIOP instruction, the treatment group made significant gains in writing, compared to the control groups. The students who were exposed to SIOP had higher scores in language production, organization of ideas, and mechanics; there was no statistically significant gain, relative to the control group, in the areas of writing focus and elaboration. Short, Fidelman, and Louguit (2012) found statistically significant improvements in a broader array of skills: reading, writing, and oral language. Unfortunately for the purposes of this current study, these students were only measured using a standardized test of general reading and writing skills, and it is difficult to discern growth in academic language, or in content areas other than English.

While SIOP, when implemented well, can help students make gains, its implementation is challenging. McIntyre, et al., (2010) found inconsistent transfer of learning in teachers who participated in SIOP training. After this intensive training, 50 hours over 18 months, participants showed more growth in some areas (building background, preparation, and comprehensible input) than in others (practice, delivery, and review). Out of 23 teachers, only 7 were judged to have fully implemented SIOP. Short, et al., (2012) found that after two years of PD, only one-half to three-quarters of middle school teachers were "high implementers" of SIOP. Batt (2010) documented the implementation of SIOP trainings that were followed up by coaching. They asked 15 participants whether the trainings were effective, and whether they were committed to implementing SIOP in the coming academic year. The teachers who attended these supported trainings reported that they saw gains in EL test scores and engagement and deeper learning for all students. They also reported that they had a greater awareness of students needs and more clearly focused lessons. However, while 100% responded that they were committed to implementing SIOP, only 53% actually did, even after working with a SIOP coach throughout the year. According to the authors, training without coaching resulted in teacher implementation rated of only 5%. The chief obstacle that teachers mention in this study was the time needed to isolate, write, and plan instruction for language objectives, a finding echoed by participants in the Academic Language Project.

Sheltering language requires an understanding of what students are to be sheltered from. Without an awareness of linguistic demand of the content area, teachers may overlook the language demands of a specific lesson when designing instruction. The SIOP requires a language objective, an explicit statement of the language that will be a focus of the lesson. However, the models of language objectives provided in SIOP do not focus on language in the explicit way

that Schleppegrell (2004), Zwiers (2008), and others do. Thu(s, while the SIOP is a good start, teacher candidates need to be able to discern and support specific features of their disciplines. The Academic Language Project aimed to support teacher candidates in both of these areas.

With the constellation of teacher knowledge charted, this review turns to models for how to teach them. The next section will review literature on how teacher education programs infuse the knowledge that teacher candidates need to support ELLs in developing the academic skills needed in order to succeed in school.

How can teacher education programs teach teacher candidates to serve ELs? The population of teacher education candidates, particularly in the content areas, is overwhelmingly White, native English speaking, and has had little training in bilingual or ESL pedagogy (Fillmore & Snow, 2000; Gándara, Rumberger, & Maxwell-Jolly, 2003). Given the demographics of the teacher candidates, there is a clear need for them to develop and use linguistically responsive pedagogy. Students learning a second language face challenges distinct from those of native-English speakers, and TCs need specific strategies and understandings to help ELs (de Jong & Harper, 2004). There is a culture gap between students and teacher and it needs bridging. NCLB, with its requirement to report on the performance of linguistic subgroups, holds all teachers accountable for EL performance, but it does not define the qualifications of mainstream teachers essential to work with ELs.

Lucas and Villegas (2010) outline the major strategies for incorporating linguistically responsive pedagogy in teacher education programs: modifying existing courses and fieldwork to focus attention on ELs; modifying prerequisites for candidates in teacher education programs; adding a new course to the program of study; or adding a minor or an additional certification that addresses pedagogical language knowledge. The option to add an entirely new course is the path

that the state of Massachusetts was forced to take as a result of the RETELL initiative. The first choice, infusing linguistically responsive pedagogy into existing course and fieldwork, describes the Academic Language Project at Landers College.

Adding a course. Too often, infusion LRP into content courses marginalizes it, relegating it to a single class session, usually at the end of the semester (Costa, McPhail, Smith, & Brisk, 2005; Lucas & Villegas, 2008). Infused courses usually attempt to teach students from multiple content areas in the same course, despite the distinct linguistic challenges presented by each discipline (Walker, Ranney, & Fortune, 2005). Adding a course to teach TCs what they need to know about language has several benefits: it gives the curricular space and time needed to address the elements of LRP in at least a cursory fashion; it sends the message that ELs are important and should not be conflated with special education; and it equips teacher candidates with a variety of resources that can help meet the needs of all learners, not only ELs.

It is difficult to add a course to the long list of courses required for undergraduate teacher candidates, and as a result, there are few instances of "course addition" in the literature, at least before the advent of the RETELL initiative in Massachusetts. Valdés, et al. (2005) describe an introductory linguistics course for teacher candidates at UC Berkeley that includes the elements of language, processes of first and second language acquisition, and attention to the linguistic features of each discipline's discourse practices. University of Minnesota designed a one-credit, post baccalaureate course to introduce teacher candidates into the best practices for working with ELs. Course instructors spent a lot of time overcoming resistance to LRP and dispelling myths about ELs in the classroom. The teacher candidates needed to learn about the BICS/CALP distinction, the length of time it takes an average learner to gain proficiency, and the important

role that a student's first language plays in learning a second language (Walker, Ranney, & Fortune (2005).

As difficult as it may be, more teacher education programs will be requiring coursework that focuses on ELs, at least in Massachusetts. Massachusetts has mandated the Rethinking Equity and Teaching for English Language Learners (RETELL) initiative, which requires all teachers to obtain a Sheltered English Instruction (SEI) endorsement on their teaching license (Chester, 2012). This initiative is a result of the 2002 ballot initiative that created *Mass General Law Chapter 71A,* replacing Transitional Bilingual Education (TBE) with "structured English immersion" courses whose primary goal was transitioning students into mainstream classes as soon as possible. The law mandates that all teaching materials be in English, and that the L1 could be used only for clarification (de Jong, Gort & Cobb, 2005). The state created four categories of professional development to support teachers in SEI classrooms, but these trainings were optional, and many teachers and researchers felt that these trainings did not go far enough (Perez-Selles, Cazabon, & Mello, 2011). The U.S. Department of Justice (DOJ) ruled that the Massachusetts Department of Elementary and Secondary Education (MDESE) was violating the civil rights of ELs by mandating SEI but not providing standards or adequate preparation and training for SEI teachers (Montano, 2012). After negotiations, the DOJ and the MDESE agreed upon a series of competencies that would make up the syllabus of an endorsement course, and that all teachers and administrators must have an SEI endorsement by 2016 (Landman, 2013). Schools of education received the syllabus in October of 2012, and were required to revise their teacher education programs to incorporate theses competencies, but not to spread them too thinly: the competencies could be spread across no more than two courses (Bickerton, 2012). At Boston College, for example, an existing course in Teaching Bilingual Learners was made

mandatory for most programs of study, along with an increased focus on the structure and function of language in Language Arts courses for elementary educators and Reading in the Content Areas for secondary educators. This is in addition to a decade of infusions of LRP into field placements and coursework and an already-existing Teaching English Language Learner Certificate that exceeds the SEI Endorsement course (A. Homza, personal communication, October 28, 2013).

Arizona has similar language policies and similar experiences with federal oversight that mandated SEI support for teachers. However, in this case, the SEI endorsement ended up drawing teachers away from the bilingual and ESL endorsements, which provided less effective training. Multiple regression analysis showed a positive correlation between teachers holding the bilingual and/or ESL endorsement and effective instructional practices, while no such correlation existed for teachers holding the SEI endorsement (Hopkins, 2012). By contrast, in Massachusetts, ESL or bilingual endorsement for core teachers is not common. There is an ESL license, but only 8% of core teachers hold an ESL license (Montano, 2012). There had been the optional Category trainings, but these have been superseded by the SEI Endorsement. Thus, it is unlikely that the Massachusetts SEI Endorsement will draw teachers away from a richer program of study, as was the case in Arizona. In addition, review of the Massachusetts SEI Endorsement syllabus is encouraging, as it incorporates prominent and relevant literature and competencies that reflect most elements of LRP (MDESE, 2013).

Modify existing course and fieldwork to focus attention on ELs. The best option for preparing teacher candidates to work with ELs is to add an entirely new course, dedicated to the knowledge and skills needed to support ELs in mainstream classrooms. However, given the crowded undergraduate program of study, this is difficult to manage, and most of the literature

regarding preparation of linguistically responsive educators involves modifying the existing program of study. Ideally, of course, the program of study would do both, as BC has done. How can existing core teacher education curricula be adapted to make sufficient space to convey the knowledge and skills needed to support ELs? Too often, they are clustered together with other "accommodations" such as multiculturalism and special education, and covered only briefly (Cummins, 2001). Meskill (2005) calls for a reframing of the conflation of LRP with special education, since it casts emerging bilingualism as a deficit. Rather than viewing ELs as failing or struggling, teacher education needs to convey the fact that these students have been disempowered by the language and educational policies of an unequal power structure. They are dually capable, and their academic struggle results not from cognitive or processing deficits, but from performing in an unfamiliar language (Greenfield, 2011). This awareness can promote positive relations between school and linguistic minority students and their families.

The Training all Teachers (TAT) project worked with faculty at SUNY Albany's School of Education to revise core curricula to include knowledge of sociolinguistics, second language acquisition, language policies, and communication strategies (Meskill, 2005). The five faculty members who reported back were enthusiastic, and planned on expanding the amount of time they would spend on ELL issues in their future classes. Feedback from graduate students who had been in these classes indicated that they emerged with greater understanding of the challenges ELs face and the policies that impact them, and that they had learned useful classroom strategies for working with ELs.

Costa, McPhail, Smith, & Brisk (2005) describe a faculty institute that led to the revision of an academic program to better prepare teachers to address the needs of all K-12 learners. In order to truly teach teacher candidates the skills needed to educate ELs, faculty needed to do

more than simply edit their syllabi; they need to revisit and add to their own knowledge on the subject, or else all that would have occurred is a document revision. This faculty learning should incorporate the various elements of LRP, both linguistic and sociocultural. Such changes are more readily enacted when they arise organically, from within the department with active involvement. Costa, et al., explain how it the TE faculty must be willing participants and contributors to the process:

> Educating TE faculty about ELLs requires that faculty be intellectually receptive to reflecting on issues and concepts of multiculturalism and to critically examining "the knowledge construction process and text analysis within different disciplines" (Nevarez et al., 1997, p. 166). Faculty must also be ready to examine personal assumptions and to sharpen their awareness of the cultures, languages, and the classroom experiences of ELLs. (p. 106)

In this case, this initiative was built on the school of education's existing social justice mission, and the department's own priority to prepare TCs to support culturally and linguistically diverse students struggling as a result of Massachusetts' then-recent movement towards rapid inclusion and the state's lack of a bilingual teacher education program. With support from the USDOE, TE faculty, representatives from urban public schools, and doctoral students participated in the institute. Through readings, discussions, videos, and school visits, participants increased their knowledge about ELs cultural and linguistic challenges and worked together to define the necessary core knowledge, revise their own syllabi, and to present it across the curriculum. Coursework, readings, and assignments were revised and sheltered practices were added to practicum placements. Unfortunately, curriculum-wide changes were not achieved at the time, likely because only a third of the teacher education faculty had been able to participate in the

institute. However, follow-up initiatives led to continued faculty professional development and collaborations that helped infuse linguistic knowledge into science and math methods courses (Brisk, 2008). These initiatives help address factors that McHatton, et al. (2009) found hindered diffusion of faculty development in cultural awareness.

Infusions of LRP into a classroom of White, native-English speaking teacher candidates require both theoretical and practical elements that relate specifically to teaching ELs. As Harper and de Jong note, effective teaching for ELs requires more than "just good teaching" (De Jong & Harper, 2005); as described above, several researchers have described an array of specific linguistic, sociocultural, and pedagogical skills and knowledge needed to teach ELs effectively.

Fieldwork. Language is a social practice, and is shaped by the community of speakers. If teacher candidates are to be culturally responsive to students who come from linguistic and cultural, minority backgrounds, they must be able to transcend the monolithic White culture of US schools. García, et al., (2010) propose a teacher education model for developing culturally responsive teachers that requires involvement in the students' communities. "Developing responsive teachers requires a setting for developing teacher knowledge that has its roots both the school community and the university setting" (p 132). In order to do this, the authors recommend service learning within EL communities.

Friedman (2002) found something similar, as she explored how eight teacher candidates experienced their field placement in a large, urban high school that is ethnically and linguistically diverse. Seven of these teacher candidates were native speakers of English, who had attended predominantly White, monolingual English schools. This placement prompted discussions about racial stereotypes and White privilege that led to a development in sociolinguistic consciousness and an appreciation for diversity. Had the TE program remained

entirely on campus, these teacher candidates would not have had these conversations, or these reflections on race, language, and culture. In addition to their cultural experiences, the teacher candidates expressed a need for strategies that would help meet the academic and linguistic needs of the learners in these classes.

Infusions. Infusing LRP into content area courses is a daunting task for teacher educators. Teacher educators may feel uncomfortable teaching outside of their expertise, challenged to handle uncomfortable conversations in class, and frustrated by the challenge of reconfiguring their content area classes to focus on ELs (Gort & Glenn, 2010). However, findings from research on the effects of infusing linguistically responsive pedagogy into teacher education courses have been positive.

Schall-Leckrone and McQuillan (2012) found that infusions of SFL led to an increase in teacher candidates' beliefs that history teachers are accountable for teaching language, and, for some, the feeling that they were now able to do so. There are similar results for math teacher candidates who had exposure to knowledge about ELs and also had diverse field placements (Terrell, 2012). There is an increased understanding of the role of L1 in developing L2, the difference between conversational and academic fluency, a need to shelter instruction for ELs, the challenge of academic English in math, and the responsibility of math teachers in addressing it (Cho & DeCastro-Ambrosetti, 2006; McLeman, Fenandes & McNulty, 2012).

While adding a course, or even a minor, would allow more opportunities to prepare culturally and linguistically responsive educators, this is not always possible. In most cases, the most that can be achieved is to infuse elements of linguistic content knowledge into coursework and to strive for field placements in culturally and linguistically diverse school settings. This was

the approach taken at Landers College, and the ALP was part of this approach. This study will detail what elements of the ALP appeared in teacher candidates' journals and lesson planning.

This chapter reviewed relevant literature and studies in order to develop a rationale for the investigation of teacher candidates' ability to recognize linguistic demand and design instruction that helps ELs gain proficiency in academic language. Grounded in this framework, this review began by identifying what knowledge teachers need to support ELs in mainstream classes. The next section reviewed the literature on academic language in order to operationalize the concept. Next, the distinction between scaffolding and sheltering techniques, including an overview of the SIOP was presented. The review concluded with literature on strategies for preparing teacher candidates to work with linguistically diverse students. Now the discussion will turn to the Academic Language Project, describing the methods by which this research has been conducted.

Chapter Three: Methodology

This longitudinal study used Sequential Mixed Design to investigate the impact of the Academic Language Project on a cohort of secondary teacher candidates across four semesters. The goal of this study was to analyze how a group of secondary teacher candidates who had participated in the ALP developed their abilities to identify the language demands of academic language in the classroom and to scaffold those language demands in their instruction.

Lucas & Villegas (2011) describe a variety of models that institutions of higher education have implemented to prepare teacher candidates to work with linguistically diverse students. However, there have been few longitudinal studies of their outcomes. The theoretical framework for this study, described in Chapter One, draws on strands in the relevant literature to operationalize a viable construct of academic language for the undergraduate TCs who took part in these trainings. This research documents teacher candidates' change and growth over time, in order to develop a deeper understanding of how this prolonged intervention might have shaped their ability to comprehend this framework. After a first phase of descriptive statistical analysis on journals and lessons submitted by 31 participants, a second phase of quantitative analysis used open coding to develop a cross-case analysis. The qualitative phase allowed the examination of a larger data set in order to generate initial findings. Qualitative analysis was able to triangulate those findings with close interpretation of the longitudinal data from six participants. For each case study participant, there were journal descriptions of classes that he or she observed, lessons he or she produced, and an observation and interview done during his or her final full practicum. This Sequential Mixed Design allowed the researcher to triangulate all of these data, along with the statistical analysis, to help lend power to the inferences drawn.

Research Design

This research investigated how undergraduate, secondary education TCs developed recognition of linguistic demand and scaffolded instruction. How did these TCs, who had participated in the forced condition of the Academic Language Project intervention, increase the essential skills of linguistically responsive teaching outlined in the research questions? This Sequential Mixed Design study was a multiple-case study that employed multiple methods, in a two-phase process of sequential data analysis (Teddlie & Tashakkori, 2006). The dependent variable was secondary teacher candidates' abilities to recognize linguistic demand of classroom text and discourse and to analyze and design appropriate scaffolds for sheltering instruction. The independent variables analyzed were numbers of prepractica, and context of the prepracticum placement. The controlled variables were that all participants were undergraduate teacher candidates; all participated in two or more prepractica semesters and submitted the materials required by the ALP, and all TCs had the same first practicum in a large, urban high school.

The quantitative analysis of teacher candidates' submitted materials were analyzed for growth in the target skills: ability to describe linguistic demand, shelter instruction, and promote academic language. The second part of this study investigated patterns resulting from the quantitative analysis and attempted to discern any development in LRP that may not have been discernible in rubric ratings. The qualitative analysis addressed journals, lesson plans, interviews, and observations, in order to understand how TCs developed their ability to recognize linguistic demand and apply appropriate linguistic supports in their classroom practice. According to Onwuegbuzie & Collins (2007), mixed methods research is a process comprised of many steps needed to clarify the purpose of the study and its resulting research design. Table 1 itemizes these steps, and briefly describes how they were addressed in the research design of this study.

Table 1

Steps in the Research Design (Onwuegbuzie & Collins, 2007)

Steps in Mixed Methods Research Process	Instantiation in the research design of current study
Determine the Goal of the Study	To measure change in TC ability to recognize linguistic demand and to recognize and plan sheltered instruction.
Formulate Research Objective	Explanation for change: "developing theory for the purpose of elucidating the relationship among concepts or phenomena and developing reasons for occurrence of events" (p. 479).
Rationale for Study and for Using Mixed Methods	Significant enhancement- "i.e., mixing quantitative and qualitative techniques in order to maximize researchers' interpretations of data" (p. 479).
Purpose for Mixing Methods	Triangulation of data
Determine Research questions (All three questions will be addressed by both phases of data analysis.)	Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed? Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development? Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development?
Select Mixed Methods Research Design:	
Time Orientation	Sequential analysis: quantitative analysis was performed first on all submitted materials; resulting trends provided sensitizing concepts for analysis of qualitative data.
Relationship of samples	Parallel relationship: samples for the qualitative and quantitative components of the research were different but drawn from the same population of interest.
Sampling Scheme	Criterion: Quantitative: all participants who submitted three semesters of data; Qualitative: all participants who had completed three trainings, were still in the teacher education program, and were in their full practicum semester were invited to participate.
Collect, analyze, validate, and interpret data; write report; reformulate research questions	

The following section outlines the research design, participants, context, measures, data collection procedures, data analysis, and limitations of methods used.

Analysis Phase One: quantitative analysis. Phase One of this Sequential Mixed Design study employed descriptive statistics (mean, standard deviation, and t-tests) to plot the TCs' growth in LRP. TC journals and lesson plans were scored in several categories (see description of rubrics in Materials section). Quantitative analysis for each category was conducted using Microsoft Excel. Descriptive statistical analysis yielded means and standard deviations for teacher candidates in a given semester, individually, and in groups. Independent-samples t-tests were used to test teacher candidates' scores cross-sectionally, i.e., to examine results of all TCs within a given a semester, and paired-samples t-tests were used in a pretest-posttest design to look for treatment effect over time.

Longitudinal data over a period of three semesters from student journals and lesson plans were scored by two readers using researcher-created rubrics that assigned values in seven categories addressing the 1) ability to recognize language demands of content area lesson; 2) ability to recognize and reflect on scaffolds seen in the classes they observed; and 3) ability to design appropriate sheltered instruction for their own teaching that helps teach content while promoting academic language. Values were assigned to account for the linguistic diversity of the class. The resulting scores were analyzed for mean and standard deviation.

These data, along with interviews and observations, were then analyzed quantitatively with univariate analysis, analyzing central tendency and dispersion. For participants submitting three semesters of data, these data were also analyzed using a paired-samples t-test. The statistical analysis examined contextual factors that may have impacted these teacher candidates' development of LRP.

Analysis Phase Two: qualitative analysis. Phase Two of this Sequential Mixed Design study involved qualitative analysis using open coding, and was designed as a holistic, multiple-case study of data from six TCs, which was then analyzed using cross-case synthesis aimed at explanation building. It was holistic in that all participants were part of the ALP at Landers College, but examined data from multiple participants and attempted to examine the contextual factors that may have influenced each one. Multiple-case study used for explanation-building allows each case to act like a separate experiment ascertaining how the intervention affected this participant's awareness and practice (Yin, 2009).

As mentioned above, qualitative data were used to illustrate trends found in the descriptive data during Phase One, and so each TC studied was a distinct instance of how the target skills developed. Phase Two extended this analysis to a qualitative analysis of the journals, lesson plans, interviews, and observations**.** After longitudinal scores were assigned and descriptive data analyzed independently in Phase One, cross-case synthesis was used to compare the scores of each TC. Cross-case synthesis helps case study researchers explore the combination of factors that may have contributed to the outcomes of each case, seek or construct an explanation as to why they differ, account for puzzling or unique findings, or further articulate the theories and hypotheses constructed from the original case (Khan & VanWynsberghe, 2008). Each participant had a specific background, and each was in a series of different classrooms during prepractica. By comparing and contrasting the multiple cases, the results can support the propositions and help to build explanations. If for example, students *a*, *b*, and *c* showed an impact, but students *d, e*, and *f* did not, are there contextual explanations that reflect the literature underlying the theoretical framework of this study? Would journals, lesson plans, interviews, and observations reveal something about the candidates that might account for this difference? For

example, are the more successful candidates bilingual, and thus more able to recognize language demands and value linguistic diversity? Did they work with a cooperating teacher or field supervisor who had experience with sheltered instruction? Were they in a linguistically diverse field placement? Did they receive additional coursework on LRP? In this study, cross-case synthesis could reveal correlations with contextual variables that help explain the variability between each TC's scores, and many of these variables may reflect findings from the literature review. Yin (2009) discusses the need for this process to be narrative, and to be grounded in theory:

> In most existing case studies, explanation building has occurred in narrative form. Because such narratives cannot be precise, the better case studies are the ones in which the explanations have reflected some theoretically significant propositions. (p.120)

Thus, the qualitative analysis of the data is based on the findings of the lit review and the theoretical framework. This is not a violation of grounded theory. Recall Wimpenny and Gass' (2000) position: "not to begin with theory and then set out to test it, but to begin with an area of inquiry and allow whatever is theoretically relevant to emerge" (p. 1486). The focus of analysis should be guided by theory, but it should not be bound by it.

Yin (2009) describes four logical tests that can be used to judge the quality of a research design. The following section describes each and accounts for the ways in which this study meets these tests.

Construct validity: how will the concepts under study be defined and operationalized? The rubrics used to evaluate teacher candidates' submissions clearly define the aspects of teaching practice under study: attending to the linguistic demand of classwork, recognizing and

suggesting sheltering techniques, and creating scaffolds that support ELs as they develop their academic language. The rubrics were pilot tested and refined on a similar population of TCs. Moreover, since these rubrics were the basis of the observational protocol and interview questions, the collected materials, field notes, and interviews provide multiple sources of evidence (see Appendix A for Interview Protocol).

Internal validity reflects the extent to which the logical inferences made in the study are warranted. Do the findings correspond with reality? Five provisions, drawn from Shenton (2004) and Yin (2009) ensure internal validity: first, the findings are triangulated by drawing on multiple data sources: journals, lesson plans, observations, and interviews. Second, the standardized data collection procedures (described below) control for data collection bias by carefully documenting how the trainings were created and delivered, how the rubrics were piloted and revised, and the how the field work was conducted. Third, contextual variables of site placement, supervising teacher, and other relevant coursework (where available) were explored to consider rival explanations. Fourth, examination of previous research findings explored the compatibility of these findings with other relevant studies. Last, tactics were used to ensure honesty in interview participants: there was no coercion, no grades or credits awarded, and no stipend. All were voluntary, held at the participants' convenience, in their classroom, and after establishing rapport, TCs were encouraged to be frank. While the interview questions are listed in the protocol (see Appendix A) other questions were asked; the benefit of a semi-structured interview is that it allows for iterative questions, to explore matters raised by the informants.

External validity is used to answer the following question: are the findings generalizable beyond the immediate case study? Case studies rely on analytic generalizations, rather than the statistical generalizations of inferential statistics. Case studies seek to "generalize a particular set

of results to some broader theory" (Yin, 2009, p.43). There is a growing body of research on preparing teacher candidates to work with ELs, as detailed in the literature review. This literature theorizes the types of pedagogical knowledge that will help teacher candidates more effectively plan instruction for the ELs in their classes. The contents of this intervention were drawn from this literature, and the trainings were delivered to the relevant population: undergraduate, secondary teacher candidates. Thus, the findings of this study are generalizable to the "broader theory" found in the literature.

Reliability poses the following question: could another researcher conduct the same study to arrive at the same conclusion? The difference between this reliability test and the concept of replicability is subtle, since the logical test for reliability starts by carefully documenting the process by which the study has been conducted to ensure that replication is possible.

> The objective is to be sure that, if a later investigator followed the same procedures as described by an earlier investigator and conducted the same case study all over again, the later investigator should arrive at the same findings and conclusions. (Note that the emphasis is on doing the *same* case over again, not on "replicating" the results of one case by doing another case study.) The goal of reliability is to minimize the errors and biases in a study. (Yin, 2009, p. 45)

However, clear reliability can be hard to ensure in qualitative research. In quantitative research, if two researchers run a statistical test on the same data the results should be identical. However, each researcher in qualitative analysis may interpret the data in a different way, and there is no way to ensure independent reliability of interpretation. Instead, the postpositive paradigm of qualitative research employs specific protocols for establishing validity. Thus, the researcher must provide multiple data sources to triangulate the results. In addition, the interpretive lens and

conceptual framework should be explicit, as should the process by which the conclusions are drawn, so that another researcher could audit the steps in the inferential chain, as has been done in this case (Creswell & Miller, 2000).

As far as controlling for errors and biases, the case study protocol has, throughout this longitudinal intervention, documented the process of planning and implementing the trainings, the development of the evaluative rubrics, and the process of conducting field observation and interviews. It also detailed the name of sites to be visited, the procedures for obtaining informed consent from the participants, as well as administrative consent from the schools. In addition, the case study database has kept master lists of participants with an assigned code that includes a randomly assigned number, the TC's content area, current prepracticum level, (i.e., first, second, or third), and semester submitted. All materials submitted and collected from all participants during the three years of the ALP (AY 2010-2012) were stored electronically, in a password-protected file, under these coded numbers and backed up to secure, encrypted, remote storage. Thus, other researchers could review all data.

In addition to the data analyzed in Phase One, Phase Two analyzed classroom observations and participant interviews in order to complement the large amount of participant-reported data in journals, lesson plans, and feedback sheets. Six of these teacher candidates participated in an observation during their full practicum and were interviewed immediately afterwards. Observations sought to control for aspects of these secondary teacher candidates' performance that were not evident in their written work. For example, there may be a difference between one's ability to write a sheltered lesson plan and his or her ability to implement it. Furthermore, there may be additional growth since the final pre-practicum, and this full practicum gives TCs additional interaction with the students, and more opportunity to assess

their linguistic needs. The observations focused on instances of LRP and used an observation schedule derived from the framework of LRP (Lucas and Villegas, 2011), supplemented with field notes. Post-observation, one-to-one, semi-structured interviews asked teacher candidates about their perceptions of 1) linguistic challenges of content area for students; 2) how they sheltered instruction, or would have if there were ELs in the classroom, and 3) which, if any, of the infusions of LRP helped them to feel more prepared to work with ELs (see Appendix A for Interview Protocol). These interviews were recorded, transcribed, and analyzed using open coding (Corbin & Strauss, 1990). Table 2 provides a timeline of the prepracticum experiences, including the ALP project, and data collected during the intervention.

Table 2

Timeline of Prepracticum Experience, Data Collection, and Analytic Approach

Time	Setting	Intervention	Data collected	Analysis
Semester 1	Prepracticum: observe in Sec Ed classroom for 10 weeks; teach 2 lessons	Academic Language Project training	8 journal excerpts 2 lesson plans	Statistical analysis Open coding
Semester 2	Prepracticum: observe in Sec Ed classroom for 10 weeks; teach 3 lessons	Academic Language Project training	7 journal excerpts 3 lesson plans	Statistical analysis Open coding
Semester 3	Prepracticum: observe in Sec Ed classroom for 10 weeks; teach 2 lessons pre-practicum	Academic Language Project training	6 journal excerpts 4 lesson plans	Statistical analysis Open coding
Semester 4	Full practicum: teach 5 days a week for 300+ hours	on site in Sec Ed classroom	One observation; One interview, recorded and transcribed	Open coding

Intervention: The Academic Language Project

The intervention at the center of this study was the Academic Language Project, a series of three trainings that attempted to help teacher candidates develop awareness of the linguistic challenge of their discipline, and learn how to design instruction that shelters content while promoting fluency in academic English. Each training session was two hours long and occurred at the beginning of each pre-practicum semester, for a total of six total hours, spread across three semesters. The onsite university field supervisors also attended these trainings, to prepare them to support teacher candidates in the field. Teacher candidates were instructed to journal on the lessons they observed and the linguistic challenges they perceived. They were also required to write language objectives into the lesson plans drafted during their prepractica and submit these lessons. These trainings and submissions were a mandatory part of teacher candidate pre-practicum requirement, but were not graded.

Table 3 outlines the content of each training, and the following section provides an overview of the contents, and their connection to the relevant scholarly literature.

Table 3

Content of ALP Trainings

P1 Training	P2 Training	P3 Training
The demographic need for LRP; introduction to academic language, registers, linguistic challenges of content area; Beginning Framework for AL: Vocab, (*3-tier, bricks and mortar*) word-level (*morphology*), sentence-level (*brief modals, passive; content area examples*); benchmark journal samples, LO samples.	AL in graphic organizers; design lesson using graphic organizers with a focus on the academic language inherent in these scaffolds; practice writing language objectives.	Scaffolding techniques; the impact of vocabulary in L2 reading; fostering academic discussions; planning productive group work; design a lesson with content and language objectives, activities, and assessments.

Like all ALP trainings, the beginning section of the first prepracticum (P1) was scheduled for the week before TCs began their site placement. University field supervisors (Masters-level students in the school of education) were also required to attend the trainings, so they would both receive the content and understand the journal and lesson plan requirements of the Project. The P1 session needed to provide much of the groundwork upon which the argument was based: why was the Academic Language Project necessary? The trainer presented data on the demographic need for more linguistically responsive pedagogy: the US is in one of its largest periods of immigration, and schools are seeing more immigrants than ever, and not only in traditional gateway states. While the number of immigrants in US classrooms is growing, the students themselves are falling behind on all available measures of academic success.

The P1 training then addressed the linguistic challenges that ELs face in mainstream classes and the goal of this Title III grant: to teach them to shelter content and to promote language acquisition. The first challenge for TCs was to perceive the difficulty that academic language posed to recently mainstreamed students. The teacher candidates were all proficient in their own discipline, and while all had studied a foreign language, few had ever been asked to perform academic work in L2. Candidates were then introduced to the concept of linguistic register, i.e., how different contexts shape the language used, making some communicative styles more appropriate than other in that context. Clearly emphasized in each training was the fact that there are no superior dialects and no broken English, just ways of speaking that are more appropriate depending on the message, media, and relationship to the audience (Schleppegrell & Go, 2007). To illustrate this point, participants were asked to rephrase the following utterance in the appropriate register: “I don’t know the answer, please don’t ask me.” Each small group was given a situational context:

- You are talking to your friend.
- You are in a class at Landers College.
- You are talking to your boss.
- You are a high school student in a class with several *frienemies*.
- You are a politician at a press conference.

Participants' responses were typed into the computer and displayed on the LCD projector, and the whole group examined the ways that vocabulary, syntax, and pragmatics shifted depending on context. This was used as a springboard to discuss vocabulary, word-level, and sentence-level features, and common functions of academic language, with discipline-specific examples. TCs were given content area texts and asked to look for language features that could be the focus of language objectives and, in content area groups with support from the trainer and the university site supervisors, attempted to write language objectives that would address these features.

The second prepracticum training (P2) focused on situating this awareness in the context of a lesson using graphic organizers. Graphic organizers are a common tool for sheltering instruction, because the relationship of the graphic components helps to illustrate the content while reducing the language burden. However, it is often overlooked as a tool to scaffold learners into using appropriate academic language. After reviewing the content of the P1 trainings, the P2 training gave students several graphic organizers and analyzed the kinds of language that students would need in order to speak and write about what they had learned. Slides from the presentation are shown below in Figure 2, making explicit the sentence-level features that students would need in order to complete an assessment. For example, a science lesson on photosynthesis might have the following language objectives: SWBAT write three

sentences in the passive voice explaining photosynthesis, using the terms *caused by, produced by,* and *is a result of.*

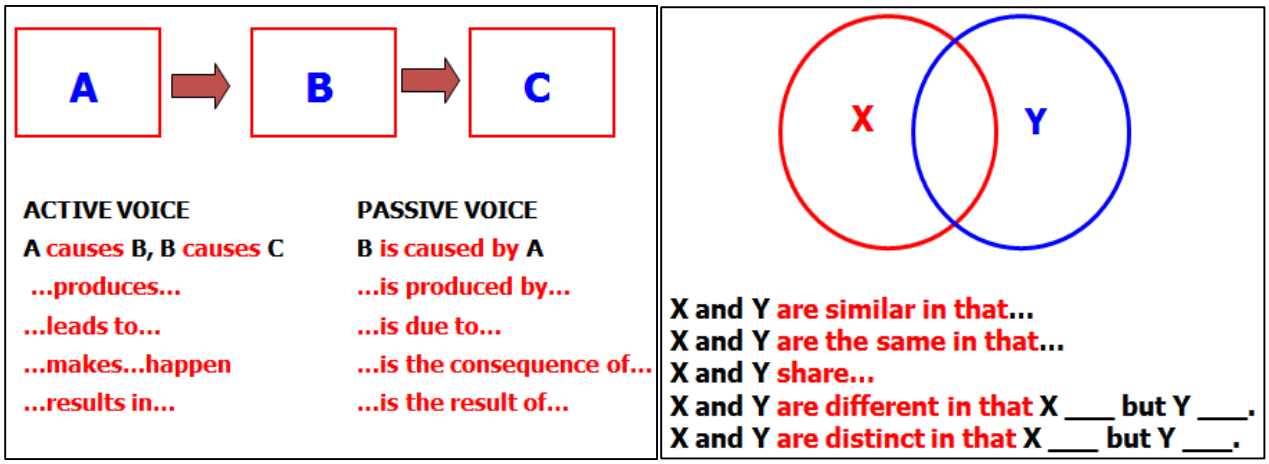

Figure 2. Language Demands of Cause and Effect and Venn Diagram Graphic Organizer.

Participants were given the MA K-12 Curriculum Frameworks for each content area and asked to design a lesson that would use a graphic organizer, and to isolate vocabulary, word-level, and sentence-level features that could be scaffolded. Figure 3 illustrates two of the posters that were created by participants working in groups. TCs were asked to list the morphology, Brick and Mortar words (Zwiers, 2008), or sentence-level features that they felt could be addressed by this lesson.

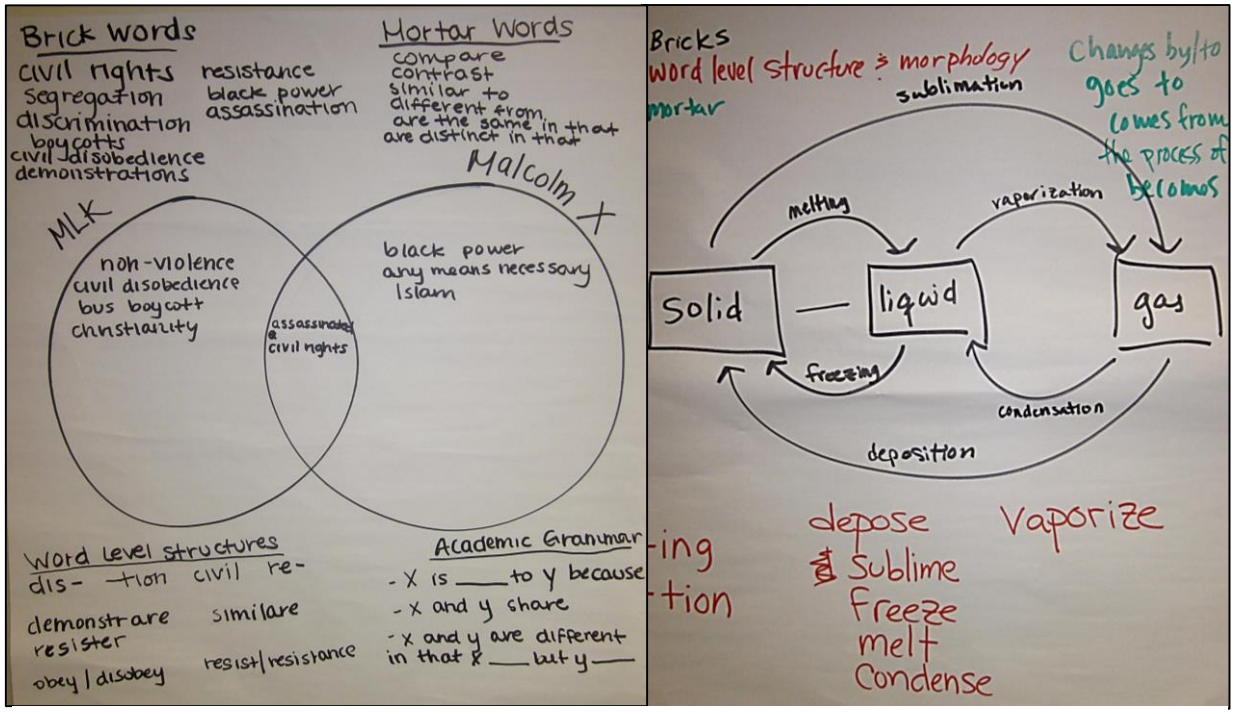

Figure 3. Graphic Organizers Created by ALP participants.

The third prepracticum (P3) training sought to equip teachers with specific strategies to scaffold students into using academic language in discussions and group work, and to help teachers plan assessment. The ALP trainings discussed a three-step process in designing instruction: target the linguistic demand of the lesson, establish the learners' current level of proficiency vis-à-vis this linguistic feature, and then plan appropriate supports. Many of the lesson plans submitted by TCs in the ALP pilot group had some scaffolding in place, but they were not used effectively. For example, many had group work or discussions, but these activities lacked the preparation and support needed to allow ELs to participant meaningfully. Participants in the P3 training were shown strategies for reading, including the SQ3PR model, or Squeepers, (Echevarria, Vogt, & Short, 2008). Participants had been assigned a reading on academic listening and speaking in small groups and academic classroom discussion (Zwiers, 2008).These two readings, reviewed by jigsaw and subsequent small group work, provided activities and

specific instances of academic language that could be the focus of instruction. TCs left this session with an outline of a lesson plan that had content objectives, language objectives linked to assessment, and specific activities that could support both the content and language objectives.

Context

This study investigated the impact of an intervention model on secondary education teacher candidates' preparedness to recognize and support English learners in mainstream classrooms. These teacher candidates attended a private, Jesuit university in the northeastern United States. Landers College (a pseudonym) enrolls approximately 15,000 students, 9,000 of whom are undergraduates. From Fall 2008 to Spring 2011, the School of Education enrolled an average 227 undergraduate students and 162 graduate students in their teacher preparation programs. During this period, secondary education licensure candidates included 95 undergraduates and 66 graduate students.

Landers College has strived to foster culturally and linguistically appropriate instruction in as many facets of teacher education as possible. In 2003, The Teacher Education department began the Faculty Institute on English Learners, aimed at better preparing teacher candidates to teach in linguistically diverse classrooms. Participating faculty revised syllabi and readings to place greater focus on the sociopolitical climate of bilingual education. There was a move for more attention on how teacher candidates can support the needs of all learners, including ELs, and to make this an integral part of the coursework rather than an accommodation to be covered late in the semester (Friedman, 2002; Costa, McPhail, Smith & Brisk, 2005). Since then, a focus on ELs and second language literacy has been infused into several of the content area methods course (Brisk, 2008). Supervisors in the field have been trained on recognizing the language demands of content area classes and on sheltering techniques that teacher candidates need. The

department maintained a course website with support materials, and encouraged students to take the bilingual courses that made up an optional Teaching English Language Learners certificate. Two successive Title III grants allowed the department to support teacher professional development, to allow faculty collaboration, provide scholarships for 94 students who pursued the TELL certificate, and conduct research on these activities (Brisk, 2008). There were also two new initiatives that had infused academic language into math and history methods courses (O'Connor & Homza, 2011).

Participants

Participants were 31 undergraduate secondary education teacher candidates pursing initial licensure in secondary education at the Landers College School of Education. Since Fall 2007, undergraduate teacher candidates pursuing licensure at the secondary level at Landers College have been required to participate in the Academic Language Project (ALP) for three semesters. Participants for this longitudinal study were selected based on the following criteria: their participation in the most all three stages of the ALP training sequence, multiple semesters of data submitted, and signed consent. Thirty-one participants submitted at least two semesters of data, and 26 of these submitted all three semesters of data. Table 4 and Table 5 detail the number of TCs involved and their content area majors

Table 4

Participants Included in Independent-Samples t-test

Participants Submitting 2 or more Semesters of Data, by Content Area Major	
Major	# of teacher candidates
Biology	2
English	14
History	7
Math	8
Totals	*31*

Table 5

Participants Included in Paired-Samples t-test

Participants Submitting all 3 Semesters of Data, by Content Area Major (subset of Table 4)

Major	# of teacher candidates
Biology	2
English	14
History	6
Math	4
Totals	*26*

In addition, six of these participants were observed teaching during their full practicum after the trainings, and were interviewed on site. These participants were selected based on the following criteria: their participation in all three stages of the ALP trainings, their participation in full practicum teaching, their continuation in the Teacher Ed program during the data collection period, their signed consent, and their willingness to agree to observations and interviews. Participants for observation and interview were solicited via email message, mail, and phone. For those who agreed, the researcher then obtained permission from the participating school before scheduling an observation. Table 6 details their content area majors:

Table 6

Case Study Participants, by Content Area Major

Major	# of teacher candidates
History	2
Math	2
Biology	1
English	1
Totals	*6*

Data Sources

The ALP included a series of two-hour trainings and fieldwork with supervisory graduate assistant teachers. Prepracticum students were required to submit a lesson plan and/or a journal

reflection for each of the 10-week practicum experiences and one feedback sheet on their experiences with the ALP. After these artifacts were reviewed and assessed by the pre-practicum supervisors, researchers collected them at the end of each semester. Beginning in Fall 2009, journals, lesson plans, and feedback sheets were collected at semester's end for review. As of Spring 2012, 202 students had submitted at least some of the required data. This study focused on the submitted materials of the target group. It also reviewed field notes from classroom observations and interviews with several participants (see Appendix A for Interview Protocol).

The researcher received initial and ongoing human research participation program through the Collaborative Institutional Training Initiative (CITI). At the end of the semester, teacher candidates submitted their lesson plans, journal excerpts, and feedback sheets to the Practicum Office, and were made available to the researcher. Starting in Fall 2009 semester, teacher candidates submitted journals and lesson plans electronically, to the project email. The ALP was a mandatory but ungraded part of teacher candidates' pre-practicum inquiry course, and as a result, submissions are incomplete for many participants.

202 undergraduate teacher candidates submitted materials, but only 31 submitted at least two semesters of data, and only 26 students submitted at least partial materials for all three semesters. Only the 31 participants submitting data for two or more semesters were included for quantitative analysis; while this limited the sample size, it focused on the data that would provide the most detail on change over time. These submitted materials were supplemented by field observations of and interviews with, six teacher candidates who were teaching as part of their full practica. These observations were documented via written field notes, with no audio or video recording, based on a researcher-created observation rubric. The researcher conducted interviews

onsite, immediately after the observation. These interviews were audio recorded, with the participants' consent, transcribed, and supplemented with written notes (see Appendix A).

Materials

Student submitted materials were scored using two rubrics developed by the researcher: the *Journal Rubric (J Rubric),* and the *Lesson Plan Rubric (LP Rubric).* These rubrics were developed and field-tested in 2010 as part of a Title III funded project, using cross-sectional data from Spring 2009 of the Academic Language Project. At that time, three readers used them to achieve inter-rater reliability of Kappa = 0.86.

In order to establish reliability on the ratings scale in this current study, two trained raters scored the journals and lesson plans to obtain interrater agreement and reliability, following procedures described in Gladney, et al. (2003). Both readers are career educators with experience in an IHE teacher education program that prepares teacher candidates to work with ELs. The first reader (the researcher), had developed the rubric and the calibration training. He had already completed the online training required by the Institutional Review Board. The second reader, a trained ESOL teacher with experience in a Teacher Education Program, also took online CITI training. Once IRB training was completed, the two readers reviewed rubrics and relevant anchor papers. Raters compared results to find consensus in applying the rubrics. Readers completed two self-calibration packets, composed of journals and lesson plans submitted by Landers College teacher candidates who were not part of the study.

After the first self-calibration training packet, scores for the two readers were not sufficiently aligned (kappa = 0.52). Additional reviews of the training packet resolved discrepancies on the anchor papers, and self-calibration of the second packet yielded substantial

agreement (Kappa = 0.76). Data were then broken into two sets, and readers independently scored all materials submitted. Results were synthesized and analyzed for inter-rater reliability.

The Cohen's Kappa (κ) was used to evaluate the inter-rater reliability between the two experts. The Kappa coefficient measures the proportion of agreement that occurs beyond that expected by chance. Scores from the two readers should agree at a rate of 0.61-0.80, which indicates "substantial" agreement (Landis & Koch, 1977, p. 165). Once all scores were compared, analysis of the completed set of data showed significant inter-rated reliability (kappa =.83).These ordinal ratings were analyzed for inter-subject variance (i.e., which students are doing better, and which are not) and for within-subject variance (i.e., growth over time).

The Journal Rubric (J Rubric). Participants in the ALP were asked to make regular journal entries about their classroom observations, in which they attended to the linguistic demand of the lesson (e.g., specific vocabulary, idioms or slang, features of words, and/or sentence structures) and supports offered by the teacher (e.g., use of visuals, adapted text, electronic media, graphic organizers, modeling, hands-on activities, use of L1, group work, role-plays, paraphrasing, etc.). Specific prompts are included in Appendix D: Project Requirements. The *J Rubric* analyzed teacher candidates' emerging understanding of the challenges of academic language and strategies for best supporting ELs' developing proficiency in this register. This instrument was developed as a tool for analyzing lesson plans and journals submitted by the first cohort of ALP participants in Spring 2009. Journals were awarded a score from 0-5, with zero being the lowest and 5 being the highest in each area of the five categories (see Table 7).

Table 7

J Rubric Categories

	J Rubric Categories	Criteria
1.	Attends to the AL demands of lesson for ELs	TC notes instances where the linguistic demands of readings, lecture, tasks, and directions in class would be more difficult for ELs. Higher-scoring entries focus on challenging word- and sentence-level features as well as vocabulary including but not limited to the difficult content area words. For example, one TC noted, "The reading seemed to be too difficult for ELs because of the long sentences, tough vocab, and use of French and Latin idioms" while another noted how a math teacher might have elaborated on the discipline-specific meaning of the commonly-used word *terminal.*
2.	Recognizes Supports Offered for Language Acquisition for ELs	TC recognizes instances where the cooperating teacher offers appropriate techniques for promoting fluency in academic language (e.g., focus on linguistic form, modeling academic language for writing, discussion, comparing spoken versus written styles, etc.). Higher-scoring entries analyze the use and success of these strategies in promoting academic language development. For example, one TC noted that the slides her cooperating teacher (CT) used "would help ELs because of the use of pictures and Tier One language," and another noted how her CT scaffolded her group work by providing sentence stems with academic discussion phrases.
3.	Suggests additional supports for language acquisition for ELs.	TC suggests multiple, additional, and appropriate supports focused on language development, and analyzes why they are needed or helpful. Higher scoring responses will support the use of multiple modes of representation.
4.	Recognizes Supports Offered for Content Acquisition for ELs.	TC recognizes instances where the CT offers appropriate sheltering techniques to make content comprehensible for students with limited English proficiency (e.g., draw on prior knowledge, provide comprehensible input, frequent student interaction, use of visuals, etc.). Higher-scoring entries analyze the use and success of these strategies in promoting content comprehension.
5.	Suggests additional supports for content acquisition	TC suggests multiple additional appropriate supports focused on promoting content mastery, and analyzes why they are needed or helpful. Higher scoring responses will support use multiple modes of representation.

Category 1 scored responses to the following prompt from the ALP requirements distributed at the trainings to teacher candidates and field supervisors: reflect in your journal on the language demands of the lesson (or part of a lesson) you observed. Did you observe oral or written language? Were pupils asked to listen, read, write, or speak? Think about: was the lesson presented as a lecture or a group activity, was any type of written material provided? What aspects of the language you observed do you think would be challenging for ELLs and why? Be as specific as possible as you identify linguistic challenges (e.g., specific vocabulary, idioms or slang, features of words, and/or sentence structures). Please answer this even if there are no apparent ELLs in class. Try to move beyond the difficulty of the content *(vocabulary of quadratic equations or the Tier Three words in Science, for example)* since those are hard for everyone in class. What would be harder for non-native speakers? *(e.g., Tier Two vocabulary, idioms or slang, features of words, language functions, and/or sentence structures*, *using the words "greater than/less than"?).*

Category 2 scored responses to the following prompt: given these challenges, what supports did you see offered to try to: 1) Give students at all levels of proficiency access to the content? 2) Teach the academic language of the lesson? Were they appropriate supports? Why or why not?

Category 3 scored response to the following prompt: given these challenges, what supports might you have offered for ELs so they would have access to the language and, thus the content?

Categories 4 and 5 were used as a way to separate out sheltering techniques that are features of mainstream content area instruction. For example, while writing Tier Three vocabulary words on a whiteboard provides multiple modes of input, and would benefit ELs, it

does not specifically address a linguistic feature of the lesson plan. This is "just good teaching," (Harper & de Jong, 2004). These methods are, presumably, well covered in content methods courses, and are not directly relevant to the skills outlined in Lucas and Villegas' linguistically responsive pedagogy. Thus, results for these categories are not included in the findings. The final combined scores for each semester were plotted and the resulting graphs were analyzed for evidence of growth over time.

The *Lesson Plan Rubric (LP Rubric*). Unlike the *J Rubric*, the rubric for lesson plans *(LP Rubric)* draws from existing exemplars of quality sheltered instruction that promote the acquisition of academic language, which were the goals of these infusions. Thus, the criteria for scoring the lesson plan rubric draws from criteria in the Sheltered Instruction Observation Protocol (Echevarría, Vogt, & Short, 2008), the Cognitive Academic Language Learning Approach (Chamot, 1996) and other sources. The *LP Rubric* has seven categories, listed in Table 8 and discussed below. Each section has its own subscore for a total of seven subscores.

Table 8

LP Rubric Categories

LP Rubric categories		Criteria	Score Range
1.	Language Objective	TC writes language objectives that describe the academic language focus of the lesson, including challenging vocabulary (beyond Tier Three words), word-level and sentence-level features.	0-4
2.	Measurable Language Objectives	The plan articulates how the teacher will know whether or not the language objective has been achieved. A "high" entry would have clearly stated objectives, using observable terms (i.e., write, say, tell, etc.). It would have specific methods for assessment that focus on the linguistic challenge written in the language objective.	0-3
3.	Instructional supports that promote academic language acquisition	Teaches the vocabulary, word-level and/or sentence levels language objectives, and provides appropriate and well developed opportunities for language development, beyond content obligatory language.	0-3
4.	Quality of assessment of the language objectives	Provides an assessment that would not be confounded by language, i.e., did not require proficiency unrelated to the language objectives.	0-3
5.	Presence of content objectives	Presence or absence of stated content objectives.	0-1
6.	Instructional supports that promote acquisition of content	These may include procedural scaffolds (demonstrations, written instructions, etc.), cognitive scaffolds (e.g., graphic organizers, outlines, etc.), or linguistic scaffolds (modified language, rephrasing, etc.).	0-3
7.	Quality of assessment of the content learned	Provides assessment of content objectives that is not implicated by limited proficiency, i.e., the assessment method or items would not be significantly more difficult for ELs.	0-3

LP Rubric, *Category 1: Language Objective* examines the language objectives written for each lesson taught during the prepracticum. The language objectives were a major focus of the ALP trainings, and an instantiation of the ability to perceive and thus target the linguistic demands of the lesson. This category of the rubric is designed to measure how well teacher candidates identified a specific linguistic feature of the content objective and class activities, and how they planned to promote this aspect of academic language. High scoring language objectives addressed multiple modes (listening, speaking, reading, writing), different levels of the ALP Beginning Framework for Teaching Academic Language (word-level, sentence-level, and

vocabulary-level), and other features and functions of academic language. For example, an ELA lesson on figurative language might have the following language objectives:

- Students Will Be Able to (SWBAT) write three sentences that create similes using the words *like* and *as.*
- SWBAT write three sentences that create metaphors using the comparative and superlative forms
- SWBAT explain in writing the similarities and differences between similes and metaphors using several of the following terms: *both, however, while,* and *in contrast.*

LP Rubric, Category 2: Measurable Language Objectives examines another feature of the language objective- whether or not they can be observed and assessed. The objectives should be stated in terms that are observable and measureable, (i.e., "SWBAT..."), and should include a plan for a specific formative assessment tied to language objectives (e.g., "Students will read sentence they have written in the past tense…").

LP Rubric, Category 3: Instructional Supports that Promote Academic Language Acquisition examines the proposed activities planned in the lesson and whether or not they promote academic language. A high scoring entry provides appropriate and well-developed opportunities for language development that go beyond content-obligatory language (e.g., a focus solely on Tier Three vocabulary). These supports should address the vocabulary, word-level and/or sentence-level language objectives and should provide opportunities for language practice. For example, a lesson on the events leading up to World War One could help students develop their academic writing by asking them to turn a timeline (a supports that promote acquisition of content) into a chronological narrative, and support this by providing key terms such as *first, subsequently, significant, simultaneously, concurrently,* and *finally.* Students could

learn how to vary their writing by using synonyms like *events, happenings, occurrences, incidents,* and *highlights*.

LP Rubric, Category 4: Assessment of Language Objectives, seeks assessment of language objectives that does not implicate language, i.e., the assessment method or items would not be significantly more difficult for ELLs by relying heavily on language outside of the domain under focus. For example, a TC writes a lesson with this good language objective: "Students will describe the major events leading up to the American Revolution, using the words *first, concurrently, subsequently,* and *finally."* The mastery of this objective should not be evaluated by requiring students to write a well-polished five-paragraph essay.

Like the content area categories of the *J Rubric*, three of the *LP Rubric* categories were created to help separate out aspects of teaching that are good pedagogy, but that do not provide the necessary supports for ELs. The last three categories (*Presence of Content Objective, Supports for Content Acquisition,* and *Assessment of Content Objective*) were used to cull out pedagogical techniques that are features of mainstream content area instruction. For example, writing Tier Three vocabulary words on a whiteboard does provide multiple modes of input, and would benefit ELs, but it does not specifically address a linguistic feature of the lesson plan. This is "just good teaching," (Harper & de Jong, 2004). These methods are, presumably, well covered in content methods courses, and are not directly relevant to the skills outlined in Lucas and Villegas' LRP. Thus, results for these categories are not included in the findings.

Means and standard deviations were obtained for the resulting scores, and these data were analyzed for growth over time using t-tests. It was hypothesized that as a result of this intervention, teacher candidates' scores would increase over time. However, as with the journals,

the data were examined in the qualitative section for possible explanations and implications of variance.

The qualitative analysis of these materials used an iterative process of line-by-line open coding to stimulate questions and codes that shaped further data analysis. For this dissertation, the teacher candidates' journals, feedback sheets, interviews, and observations were analyzed and coded for important concepts that emerged in relation to the topic under study. As these codes emerged, the researcher categorized them and looked for patterns. Through axial coding, these codes were related to each other and to the teacher candidates' undergraduate experience. This allowed an exploration of how the contexts and conditions of each TC's undergraduate career may have influenced the TC's actions vis-à-vis his or her emergent ability to recognize and support academic language (Corbin & Strauss, 1990) that can for the inferential base of a theory.

Limitations of methods

This research aimed to inform the field of teacher preparation, specifically teacher candidates' preparation to work with ELs despite a crowded program of study. While it is hoped that these findings may inform the field, this qualitative research study is situated in a particular context, and any attempt to generalize the findings must keep these contextual factors in mind. The research design and development of the research, data collection, and analysis proposed were the result of decisions based on professional experience and input of informed advisors and therefore, ultimately shaped the findings. While the researcher attempted to minimize bias, the process of describing the complex careers of these undergraduate students necessarily involved choices as to what to include and what to omit; thus, these choices were made explicit. Furthermore, the researcher designed and implemented the training, and thus is vested in their

success. This factor could have impacted how data are scored in the quantitative analysis, so a second reader was used to ensure reliability of the data.

Use of results

It is hoped that the findings of this study can be used to inform how schools of education can better prepare teacher candidates to work with ELs. How have these TCs developed their ability to recognize linguistic demand and scaffold instruction? What aspects of the ALP have actually transferred to practice? What aspects of the intervention do teacher candidates think were most effective? Teacher education departments in Massachusetts, facing the RETELL initiative, may find the results useful as they design their own method for addressing the SEI Endorsement requirements from the state DESE (Chester, 2012). Teacher education programs across the nation, dealing with similar professional development challenges, may also find these results useful as they redesign secondary teacher education to deal with the changing face of U.S. pupils.

Chapter Four: Quantitative Results

Phase One of this study involved a quantitative analysis, to provide preliminary findings that would provide sensitizing concepts for the open coding conducted in the qualitative analysis of Phase Two (reported in Chapter Five). According to Charmaz (2003), sensitizing concepts are background ideas based in our "disciplinary emphases and perspectival proclivities" that "provide starting points for building analysis, not ending points for evading it" (p.259). Thus, the literature review and Phase One results provided interpretive devices, not definitive concepts that would constrain the analysis of Phase Two data. Phase One used descriptive statistics (mean, standard deviation, and t-tests), to answer the three research questions:

- Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed?
- Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development?
- Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development?

Preliminary Analysis

Preliminary analysis is based on data from two instruments: *Journal Rubric (J Rubric),* and the *Lesson Plan Rubric (LP Rubric).* Descriptive statistical analysis yielded means and standard deviations for teacher candidates in a given semester, individually, and in groups. Average scores for the whole group from the first semester were compared to those from their previous semester, to discern growth over time. Lastly, scores from the entire sample were

divided into two groups: prepractica field placements that were linguistically diverse and those that were not. Independent-samples t-tests were used to test teacher candidates' scores cross-sectionally, i.e., to examine results of all TCs within a given a semester, and paired-samples t-tests were used in a pretest-posttest design to look for treatment effect over time. Overall findings for each of these instruments are presented below. For each instrument, results are presented first for the entire sample, then for each condition (i.e., over time and by linguistically diverse field placements).

The Journal Rubric. The *Journal Rubric (J Rubric*) was one of two instruments used in Phase 1 analysis of materials that teacher candidates submitted at the end of each prepracticum. As described in Chapter Three, the *J Rubric* rates teacher candidates on a six-point scale, ranging from 0-5, with zero being the lowest response, and five being the highest. Journal entries were scored in five categories: 1) Attends to the AL Demands of Lesson for ELL; 2) Recognizes Supports Offered for Language Acquisition for ELs; 3) Suggests Additional Supports for Language Acquisition for ELLs; 4) Recognizes Supports Offered for Content Acquisition for ELs; and 5) Suggests Additional Supports for Content Acquisition.

J Rubric, Category 1: Attends to the AL Demands of Lesson for ELs. This category measures how well TC prepracticum observation journals were able to address a specific prompt that asked them to record the language demands of the lesson and to describe which aspects of it would be more difficult for ELs. It is designed to address Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed? Looking at overall scores for all participants from all semesters, teacher candidates generally scored in the medium range ($\bar{x}$ = 3.7, S =1.31). However, once scores were disaggregated by semester, a significant difference emerged. As Figure 4 shows, teacher candidates reflected much more often

on the linguistic demands of the lesson for ELs when they were in a linguistically diverse field placement.

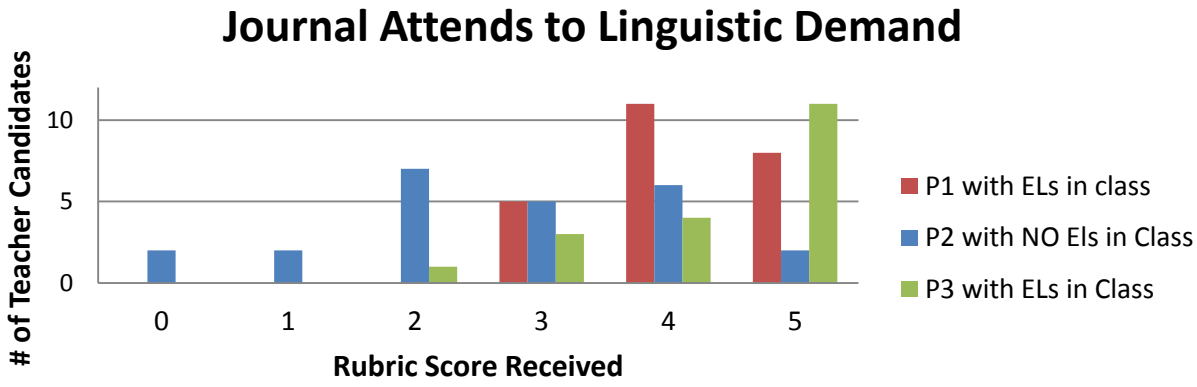

Figure 4. Bar Graph Showing Scores for *J Rubric*, Category 1.

An independent samples t-test assuming equal variances was conducted to test for significance of these differences. After the results of an f-test ($F = 0.56 < F$ critical one tail = 0.60), it can be assumed that variances are equal between the two samples. Students in a linguistically diverse field placement had higher *J Rubric,* Category 1 scores ($\bar{x} = 4.15$, $S = 0.99$) than the same students in a field placement that had no ELs ($\bar{x} = 2.75$, $S = 1.32$), $t\,(91) = 4.19$, $p = <.001$. These results suggest that placement in a linguistically diverse environment does have an impact on teacher candidates' ability to attend to linguistic demand. Specifically, these results suggest that teacher candidates in a linguistically diverse environment are more able to attend to the linguistic demand of a content area lesson.

J Rubric, Category 2: Recognizes Supports Offered for Language Acquisition for ELs. This category measures how well TC prepracticum journal entries mention and ideally reflect on the usefulness of language supports they observed their cooperating teacher use. It addresses Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language

development? It should be noted that several teacher candidates took a very active role in their field placements; when teacher candidates were actively supporting ELs one-on-one or in small groups, they had little opportunity to recognize language supports, but often suggested them. Like all *J Rubric* categories, scores in this category range from 0-5, with 5 being the highest score.

In examining overall scores for all participants from all semesters, teacher candidates generally scored in the medium range ($\bar{x}$ = 2.91, S = 1.66). However, as with Category 1, once scores were disaggregated by semester, a significant difference was observed. As Figure 5 shows, TCs' journals are much more likely to include description of instruction designed to promote academic language fluency for ELs when they are in a linguistically diverse field placement. An independent samples t-test assuming equal variances was conducted to test for significance of these differences. Results of an f-test (F = 1.01< F critical one tail =1.78), indicate that variances are equal between the two samples. Students in a linguistically diverse field placement had higher *J Rubric,* Category 2 scores ($\bar{x}$ = 3.29, S = 1.52. than the same students in a field placement that had no ELs ($\bar{x}$ = 1.86, S = 1.51), t (91) = 4.19, p = <.001. Overall then, teacher candidates were able to record instances of successful language scaffolding in their journals, but they were far more able to do so when they were observing a class that included ELs.

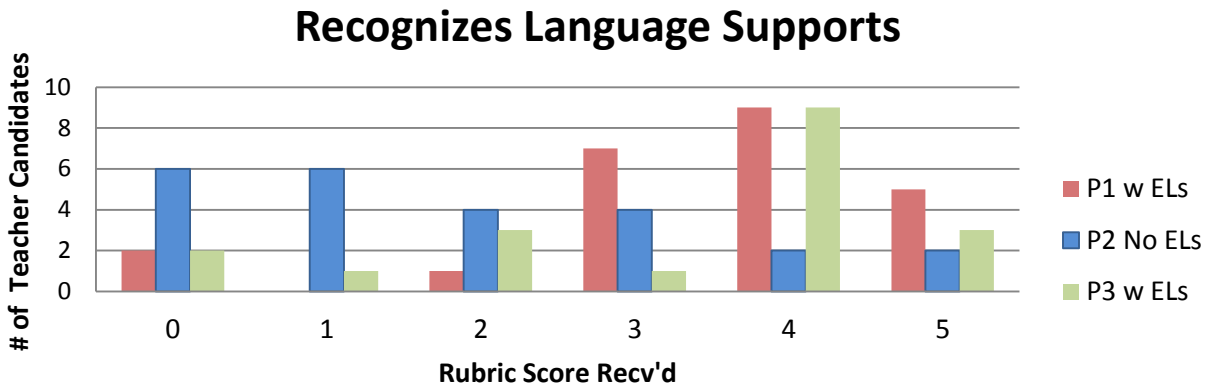

Figure 5. Bar Graph Showing Scores for *J Rubric*, Category 2.

J Rubric, Category 3: Suggests Additional Supports for Language Acquisition for ELs. Category 3 quantifies how well teacher candidates suggest and ideally reflect on the justification for, language supports in their prepracticum journals. This category is intended to address both Research Questions 2 and 3. Question 2 asked how teacher candidates recorded instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development, while Research Question 3 asked how well secondary teacher candidates plan instruction designed to aid in content acquisition and promote academic language development. By observing instruction and making suggestions as to other supports that could have been offered, TCs are effectively answering both questions; they are addressing the sheltered instruction they witnessed, but also thinking about how they would plan instruction. It should be noted that several teacher candidates scored low on this category because they were observing master teachers who left little room for novice teachers to suggest improvements.

Like all J Rubric categories, scores in this category range from 0-5, with 5 being the highest score. In examining overall scores for all participants from all semesters in Category 3, teacher candidates generally scored in the medium range ($\bar{x}$ = 2.67, S = 1.9). Although Category

3 required students to actively suggest interventions and was therefore more cognitively demanding than Category 2, students scored only slightly lower overall.

As with Categories 1 and 2, once scores are disaggregated by semester, a significant difference was observed depending on the composition of the classroom observed. As Figure 6 shows, TCs' journals were much more likely to suggest instruction designed to promote academic language fluency for ELs when they are in a linguistically diverse field placement.

Based on the results of an f-test ($F = 0.94 < F$ critical one tail = 0.60), variances between the two samples could not be assumed to be equal, so an independent samples t-test assuming unequal variances was conducted to test for significance of these differences. Students in a linguistically diverse field placement had higher *J Rubric* Category 3 scores ($\bar{x} = 3.14$, $S = 1.78$) than the same students in a field placement that had no ELs ($\bar{x} = 1.64$, $S = 1.83$), $t(91) = 3.65$, $p = <.001$. Thus, while overall teacher candidate scores were in the medium range, students were far more successful at suggesting linguistic supports when they were in a linguistically diverse class.

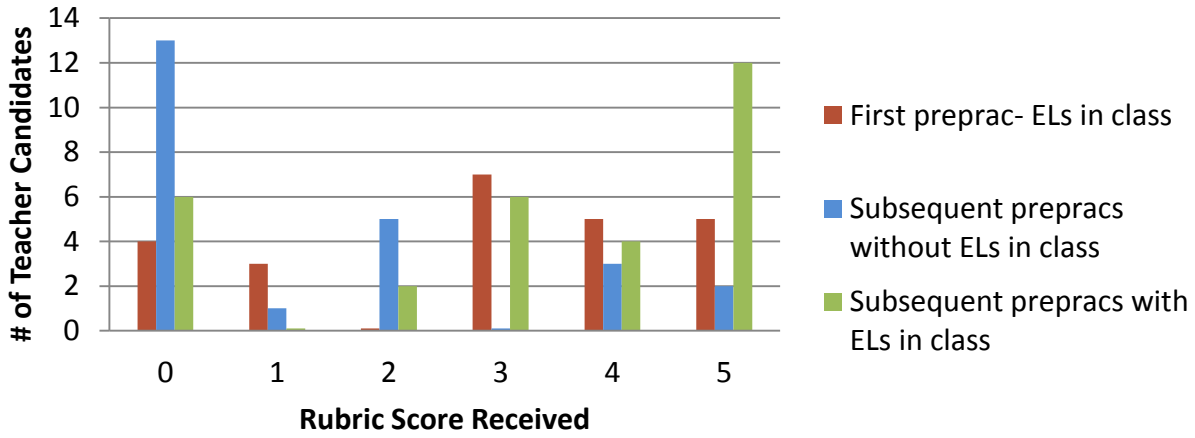

Figure 6. Bar Graph Showing Scores for *J Rubric*, Category 3.

The Lesson Plan Rubric *(LP Rubric).* Overall, scores for *the LP Rubrics* were lower than those for the *J Rubric*s, suggesting that while teacher candidates were developing linguistic awareness, they struggled to integrate it into their lesson plans.

LP Rubric, Category 1- Language Objectives. This category describes what language pupils will learn. It is designed to address Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development? Based on the theoretical framework for this study, TCs need to be able to perceive the linguistic demand in order to target it for instruction. Therefore, the first step in designing instruction is to ascertain the language that students will need to use in class. With this language in mind, TCs can design the necessary supports that students will need in order to use this language successfully. The ideal language objective would focus on the linguistic challenge of the lesson, including attention to word-level structure, sentence-level structure, and vocabulary beyond what Beck and McKeown (1985) call Tier Three. These are the low incidence words specific to an academic content area. It would also address multiple modes, and other features of academic language.

In examining the overall scores for all participants, teacher candidates generally scored low ($\bar{x}$ = 1.13, S = 0.93). Figure 7 compares Language Objective scores between placements that were linguistically diverse and those that were not; even in diverse classroom settings that included ELs, Language Objective scores did not reach the desired level. The lesson plans that teacher candidates wrote in a linguistically diverse field placement scored only marginally higher ($\bar{x}$ = 1.28, S =1.02) than those submitted when they were in field placements without ELs ($\bar{x}$ = 0.97, S = 0.83). An independent samples t-test assuming unequal variances indicated that these differences were not significant, t (91) = 1.43, p = 0.08. In other words, despite instruction

focusing on language objectives and exposure to diverse prepractica, teacher candidates were not able to isolate and support linguistic challenges in the lessons they designed and plans they wrote by themselves.

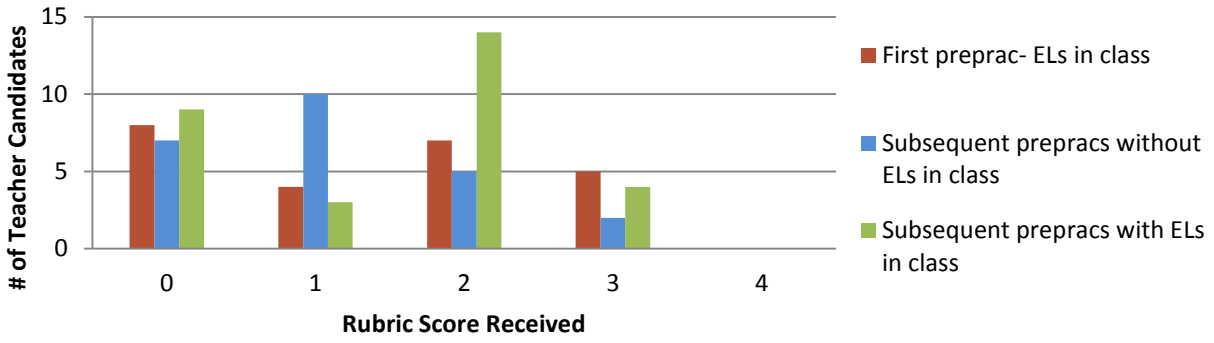

Figure 7. Bar Graph Showing Scores for *LP Rubric*, Category 1.

LP Rubric, Category 2: Measurable Language Objectives. This category measures whether or not the language objectives incorporated are specific enough to be assessed. Were language objectives measurable and specific? Although the overall average was higher than the values for other LP Rubric categories it was still low ($\bar{x}$ = 1.27, S =1.14). Figure 8 compares Category 2 scores, broken out by semester. The language objectives in lesson plans written by teacher candidates in a linguistically diverse field placement scored only marginally higher ($\bar{x}$ = 1.29, S = 1.14) than those written in a field placement with no ELs ($\bar{x}$ = 1.2, S = 1.15). An independent samples t-test assuming equal variances indicated that these differences were not significant, $t(91) = 0.35$, $p = 0.36$. The fact that the Category 2 average was slightly higher that the average of Category 1, and the bimodal distribution, shows that while many students were not able to write measurable language objective, some were proficienct enough in write content objectives to be able to couch their language objectives in measurable terms.

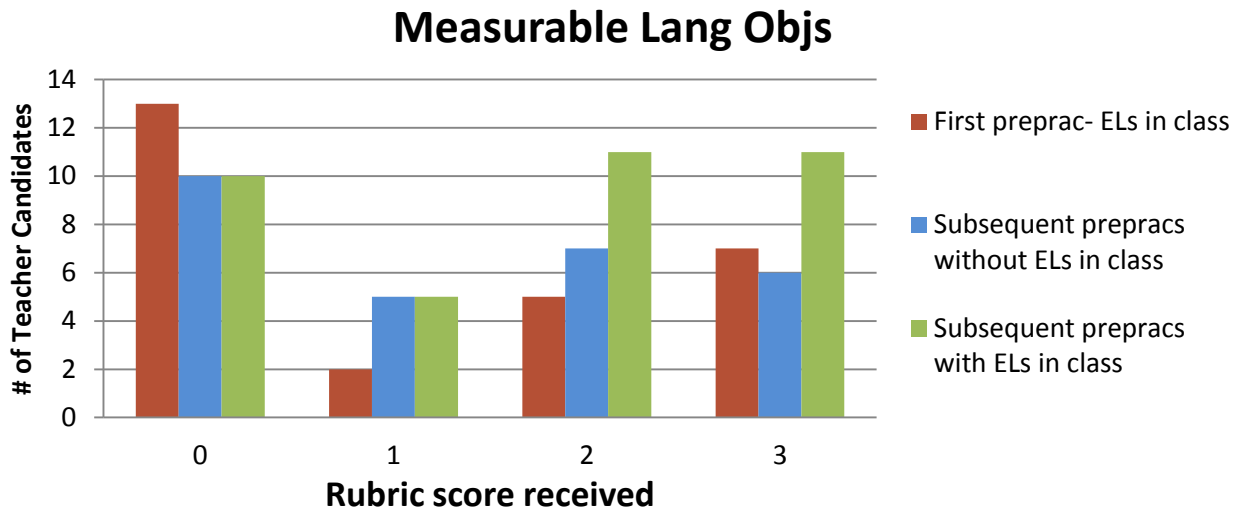

Figure 8. Bar Graph Showing Scores for *LP Rubric*, Category 2.

LP Rubric, Category 3: Instructional supports promote academic language acquisition.

This category measures how well the TC lesson plan incorporates instructional supports that promote academic language development, thereby addressing Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development? The overall average of TC lesson plans was uniformly low ($\bar{x} = 0.51$, $S = .79$). Figure 9 shows a comparison of Category 3 scores, broken out by semester. The lesson plans written while teacher candidates were in a linguistically diverse field placement scored only marginally higher ($\bar{x} = 0.55$, $S = 0.84$) than those written in a field placement with no ELs ($\bar{x} = 0.4$, $S = 0.72$). An independent samples t-test assuming equal variances indicated that these differences were not significant, $t(91) = 1.11$, $p = 0.13$. Teacher candidates had a difficult time creating lesson plans that provided linguistics supports, even when teaching these lessons to EL students who needed such scaffolding.

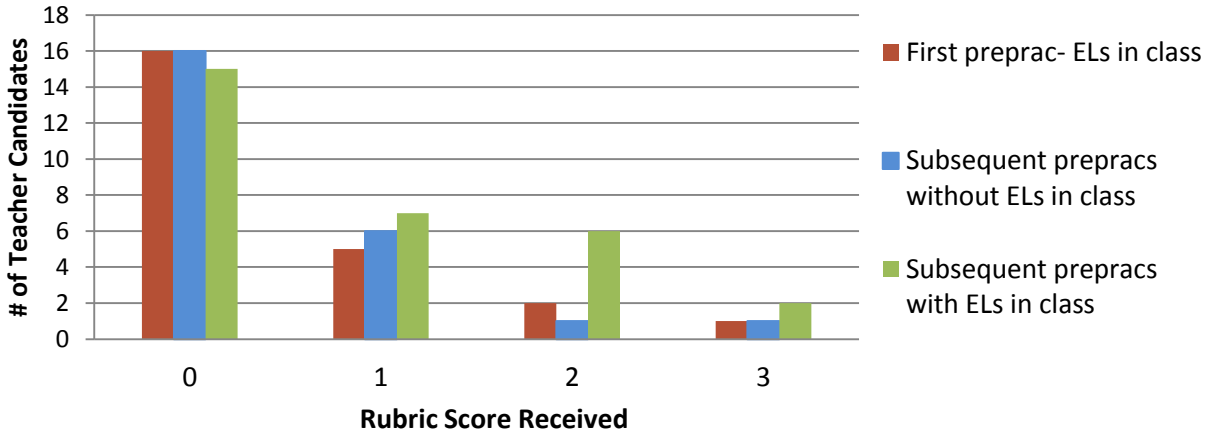

Figure 9. Bar Graph Showing Scores for *LP Rubric*, Category 3.

LP Rubric, Category 4: Quality of assessment of the language objectives. This category measures how well the teacher candidates' lesson plans assessment activities that measure the content objective without introducing domain-irrelevant language challenges that would make the assessment significantly harder for ELs. The overall average of TC lesson plans was uniformly low ($\bar{x}$= 0.46, S = 0.66). Figure 10 shows a comparison of Category 4 scores, broken out by semester. The lesson plans written by teacher candidates in a linguistically diverse field placement scored only marginally higher ($\bar{x}$ = 0.54, S = 0.71) than those written in a field placement with no ELs ($\bar{x}$ = 0.27, S = 0.52). An independent samples t-test assuming unequal variances indicated that these differences were significant, $t(69) = 2.05$, $p = 0.02$. While teacher candidates at Landers College have been well trained to design assessments in their lesson plans, the overall low score shows that the majority of these assessments was poorly focused on the language objectives, and required domain-irrelevant knowledge.

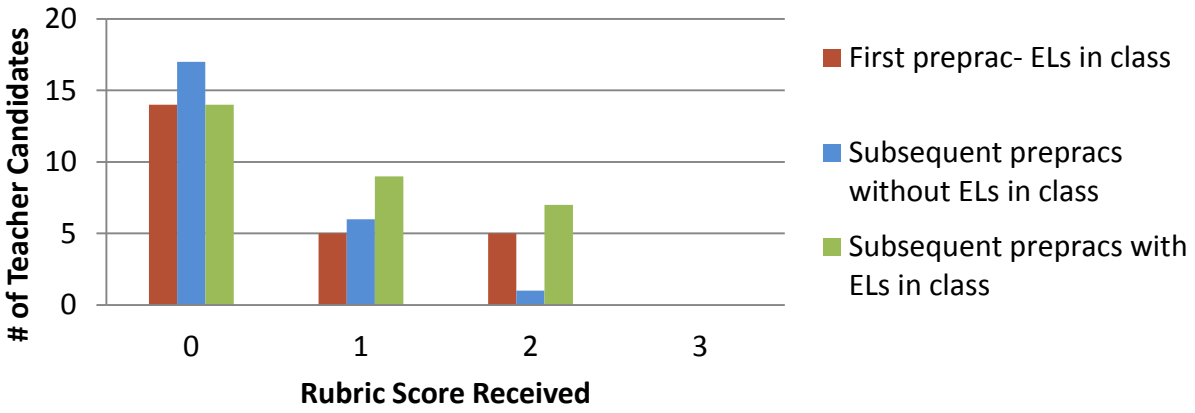

Figure 10. Bar Graph Showing Scores for *LP Rubric*, Category 4.

Growth over Time. A primary hypothesis is that, given coursework and exposure to the Academic Language Project, teacher candidates' abilities to address the needs of ELs would increase over time. However, after comparing TC score in all categories from first to last semester, there was no significant difference in any of the measures. Table 9 and Table 10 provide results of paired samples t-test for all test categories for all teacher candidates submitting three semesters of data (n =31).

Table 9

Comparison of J Rubric scores first and last semesters.

Category	First semester		Last Semester		Results of one-tailed, paired-samples t-test
	Mean	S	Mean	S	
J Rubric, Category 1: Attends to AL	3.97	1.22	3.90	0.91	$t(30) = 0.36$, $p = 0.36$
J Rubric, Category 2: Recog Lang Suppts	3.32	1.4	2.83	1.68	$t(30) = 1.25$, $p = 0.11$
J Rubric, Category 3: Suggests Lang Suppts	2.84	1.71	2.84	1.88	$t(30) = 0.0$, $p = 0.5$

Table 10

Comparison of J Rubric scores first and last semesters.

Category	First semester		Last Semester		Results of one-tailed, paired-samples t-test
	Mean	S	Mean	S	
LP Rubric, Category 1: Language Objectives	1.11	1.03	1.25	0.92	$t(30) = -0.67$, $p = 0.26$
LP Rubric, Category 3: Language Supports	0.33	0.63	0.61	0.94	$t(30) = -1.69$, $p = 0.05$
LP Rubric, Category 4: Assessment of Language Objectives	0.46	0.69	0.57	0.73	$t(30) = -0.69$, $p = 0.24$

None of these categories shows a significant difference between the mean scores of the materials that teacher candidates submitted during their first semester and those submitted at the end of their last semester. To state it another way, in a pre- and post-analysis, these data do not indicate that, beyond the results of their first semester, teacher candidates improved in their ability to attend to the linguistic challenges of academic language or to write lesson plans that scaffold academic language in subsequent semesters.

Summary. Through descriptive statistics, data indicate that TCs are able to recognize and record some aspects of the linguistic challenges that ELs face in mainstream content area classes. To a lesser extent, journals captured and even suggested instances of sheltered instruction. In all cases, however, students scored much higher when placed in linguistically diverse field placements. Yet their lesson plans showed no statistically significant growth over time in their ability to plan lessons with targeted language objectives, linguistic scaffolding for academic language, or assessments that did not rely heavily on domain-irrelevant language domains. When materials submitted by TCs were analyzed longitudinally, comparing submissions from the first semester to those from the last semester, TCs as a group showed no statistically significant growth over time. Chapter Five will report the findings from Phase Two

Of this Sequential Mixed Design study, which considers these Phase One findings and use them as sensitizing concepts to will shape the qualitative analysis.

Chapter Five: Qualitative Results

Phase Two of this study involved a qualitative analysis of six case studies, analyzing the journal submissions and feedback forms of these six TCs, as well as observations and the transcriptions of subsequent interviews conducted towards the end of their full practica. This qualitative analysis is intended to triangulate and explicate the quantitative findings from Chapter Four in order to answer the three research questions:

- Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed?
- Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development?
- Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development?

All materials were analyzed using open coding (Charmaz, 2006), to break the data down into units and to look for linkages. Broadly speaking, the data were first analyzed by descriptive labeling and then grouped using analytical categories. In the descriptive phase, materials were read once and notated; then data were reread carefully, line-by-line, and relevant pieces were given descriptive labels. Criteria for labeling emerged during this iterative process. Particular attention was given to themes that were repeated, surprising, stated as important by the participant or that related to the literature reviewed or to the Phase One findings. In the analytic phase, data were conceptualized by grouping relevant codes into categories. These categories

were labeled and analyzed for connections to each other and to the research questions, and to Phase One findings. While Phase One reported the researcher's analysis of participant performance, Phase Two data represent the knowledge of the ALP and other infusions, according to participants. This chapter will be organized around the four major data sources: the collected journals and lesson plans submitted by the case study participants during their three prepractica semesters; and observations and interviews conducted with these same participants during their subsequent full practicum field placement.

The six case study participants were all taking part in their full practicum semester at the time of the observation and interview. Table 11 gives the pseudonyms and content area majors for the six case study participants.

Table 11

Case Study Participants

TC Name	TC Content Area Major	Gender
Miranda	English	Female
River	History	Female
Betsy	Math	Female
Zach	Biology	Male
Zoe	History	Female
Alice	History	Female

Journals.

The TC journal excerpts analyzed in this section come from the six case study participants. They are the specific entries in the participants' prepracticum journals that were responding to prompts about to academic language (see Appendix D: Project Requirements for specific prompt). Journal excerpts were submitted at the end of each undergraduate semester of prepracticum and were intended to address the first two research questions: 1) to what degree did

secondary teacher candidates describe linguistic demand observed in class? 2) To what degree did secondary teacher candidates' record observed instances of scaffolded instruction by the cooperating teacher? Specifically, this addresses instruction that was designed to both aid in content acquisition and promote academic language development.

Many entries referred to observations and suggestions for successful discipline-specific teaching methods: Venn diagrams, LCD projectors, notes sheets, games, grouping methods, realia, and other proven ways to make abstract concepts more concrete for adolescent learners. These are essential skills that are well covered in teacher education methods courses. This is a good place to start, as these teacher candidates needed strong pedagogical content knowledge; skills that, based on their journals, methods classes and cooperating teachers were helping to develop.

However, in order to help recently mainstreamed ELs, core content area teachers need more than "just good teaching" (Harper & de Jong, 2004). They must focus on the linguistic demand of the lesson, shelter it, and promote its use. Harper and de Jong (2004) describe the primacy of perception of linguistic demand:

> Mainstream teachers must learn to look *at* rather than *through* language used in the classroom in order to understand the linguistic demands of their content areas and, in response, carefully structure learning tasks according to ELLs' needs. (p. 158)

To reiterate, many Landers College teacher candidates had difficulty isolating the linguistic demand of their content area, because it was so familiar to them. Zach, one of the case study participants, said in his journal that, "When Biology became my major, its vocabulary became part of my life and, with time, it became part of my vocabulary." Thus, one of the goals of these

infusions was to make TCs aware that the language and concepts of biology, English, history, or math are not yet common to their students, particularly for ELs.

This section addresses Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed? Evidence shows how TCs developed their understanding of linguistic demand in class, as it relates to the three levels of the Beginning Framework for Teaching Academic Language: vocabulary, word-level, and sentence-level structures. Instances from TC journals that relate to each of these levels are presented.

The journal entries in these six case studies shared instances where teacher candidates were able to describe linguistic demand in the classes they were observing, but also described and suggested successful techniques aimed at sheltering instruction and promoting academic language development and as such they were a rich source of data with which to address the research questions of this study. However, upon coding the journal entries, it became apparent that most of the observations about the challenges of academic language occurred in the context of a lesson designed to support these linguistic challenges. There were only a handful of reflections on the language itself; instead, many dealt with the language and how it was, or ought to be, taught. This was surprising to the researcher who has a background in linguistics and thus sees the language itself as the object of study and the teaching methods as a means to this end; for these teacher candidates, the language was not readily apparent until it became the focus of instruction.

Thus, while the research questions separate recognition of linguistic challenge from the ability to support and promote their acquisition, participants saw these as intertwined. As a result, this section is organized around responses that address Research Question 1, and TC responses that employ the three tiers of the Beginning Framework for Teaching Academic

Language, since this is the skill foundational to planning lessons that target language. However, these responses also provide evidence for Research Question 2, how well TCs recorded instances of mentor teachers' scaffolded instruction, and Research Question 3, how well secondary teacher candidates plan scaffolded instruction. Data that address these questions will be noted during the relevant passages.

In addressing Research Question 1, the ALP trainings attempted to reduce the complexity of the construct of academic language for teacher candidates by employing the Beginning Framework for Teaching Academic Language. These journals show that some of these concepts transferred more readily than others. Teacher candidates most readily realized the challenges of a wider range of vocabulary, and several saw instances of teaching morphology, but there were only two instances where a TC focused on sentence-level features.

Describing and scaffolding morphological features of AL. Several case study participants from various disciplines were able to describe linguistic demand and scaffolded instruction that focused on morphology, i.e., breaking a word down into its roots and affixes to examine the meaning that each part lends to the whole. Alice clearly described how a morphological approach was used in a history class:

> For example, one word the teacher analyzed with the class was "nationalism," breaking down into "national" and "-ism." First, the teacher checked for students' understanding of "national," a word most students could define even if they were unsure of "nationalism." He then illustrated how the suffix "-ism" transforms the adjective "national" into the noun "nationalism," and provided another example of this transformation, "patriotism." Not only did such analysis increase students' understanding of nationalism through their prior knowledge of national, but it also

> illustrated a common word relationship in English. Students can begin to recognize this pattern and apply their knowledge about it to other circumstances.

This passage echoes the work of Kieffer and Lesaux (2012), who find that teaching derivational morphology helps all learners increase their morphological awareness in all disciplines. This focus on morphology was not limited to one classroom. Miranda saw her cooperating teacher "discussing the roots of the words, so students were able to more easily remember the professional term for a tercet." Zach described how she saw this strategy used in two different disciplines in the same day:

> Today I noticed how important it is to explain the roots, suffixes, and prefixes of words when teaching students new vocabulary. In one biology class I observed, the teacher explained the new term "organelles" by reminding students what an organ is and what function it has in the human body. Once students answered that organs help the body to function, he then explained that organelles help the cell to function in much the same way. In a history class that I observed later on in the day, I noticed the same strategy. This particular teacher was talking about Mayan culture and trying to explain the difference between astronomy and astrology. He broke down the words to describe to students that one referred to the study of the stars whereas the other referred to the study of planets and other bodies in outer space. I think this strategy is a very useful one because it helps students learn the meanings of a lot of other related words at the same time they are learning the meaning for the given word in class.

This is a clear example of an application of the Beginning Framework for Teaching Academic Language, and an instance that addresses Research Question 2, insofar as these TCs recorded

instances of mentor teachers' scaffolded instruction. Given the findings of Chapter 4, vis-à-vis the importance of being in a linguistically diverse classroom, reflecting on how an experienced teacher shelters instruction is important to TCs trying to develop their craft.

While sentence-level features proved challenging during ALP trainings, attention to morphology was a common feature in artifacts produced during the trainings, and thus it is no surprise that several participants decided to use this approach in their own pre-practica lessons. Zach gave evidence towards Research Question 3, as he described how he used root words and affixes in his prepracticum biology lesson:

> One of the big language focuses in my lesson this week was root words. Root words can be truly useful in understanding a word's concept or meaning, especially if the student doesn't know the actually meaning of the word. By understanding the individual parts of the word, they can gather some idea of the meaning of the whole word. Specifically, students looked at the words "photic" and "aphotic" which are common in discussion of the Ocean Biome. the prefix 'a' means 'not or against'; the root word 'photo' comes from the Greek 'phos' or 'photos' which mean 'light'. Thus, photic has to do with 'light' aphotic has to do with 'no light'. Many science words are either rooted in Latin or Greek or actually are Latin or Greek.

He then went on to detail how he planned to make this a consistent but unobtrusive part of his pedagogical practice:

> One way a teacher might teach such an understanding is to have a daily prefix or suffix that relates to the lesson of the day, as my English teacher used to do for my class. This would be a good opening exercise where students are provided

> with a prefix or suffix and asked to deduce, based on the words that contain it, what it means. Then, when the students encounter the prefix or suffix in their reading, they will already have a better understanding of what the word means. Although prefixes and suffixes can be quite difficult to master for any student, learning them is fantastic for both ELL and non-ELL students because prefixes and suffixes are used throughout language and learning them can make learning language much easier.

These participants incorporated the first level of the Beginning Framework for Teaching Academic Language: they focused on using derivational morphology as a way to scaffold and promote academic language.

Describing and scaffolding vocabulary features of AL. The second level of the Framework for AL deals with the need to teach vocabulary beyond discipline-specific Tier Three words. Like morphology, participants seemed able to describe linguistic demand in relation to vocabulary quite readily. Many of the participant journals spoke about instances where they noticed teachers addressing Tier Two words. Here is an example where River employs Zwiers' (2008) terminology of brick words versus mortar words:

> When she made students define the word "influence" I felt that was probably really useful too. I think that is more of a mortar rather than brick word, so not all teachers might have carefully defined it. Also, I thought the worksheets she gave out were useful for ELL students as well. Then having the kids do groupwork allows students to practice, and some who might struggle with the activity on their own can work with others and have support from their peers.

In this passage, we can see that this TC is applying the concept of brick and mortar words, a focus on the crucial transition and function words that are often abstract and rarely defined. She also notices scaffolded instruction designed to aid in content acquisition and promote academic language development.

Miranda echoed this point, that a focus on academic language can have benefits across the curriculum. She reflected on the general utility of Tier Two words that were supported in part of an English lesson: None of the terms are restricted to the English content area, and all of the students had to research these unfamiliar terms in order to learn about their importance to the era of the Vietnam War.

As the literature makes clear, a focus on vocabulary benefits reading skills in all subject areas, but vocabulary needs to be addressed strategically. Focusing on academic words that cross disciplines can help students master the words that account for a significant percentage of academic texts.

Two of the case study participants' journal entries relating to vocabulary give evidence towards Research Question 3, how TCs plan scaffolded instruction. Both Alice and Betsy recognized the difficulty of the vocabulary itself, even though the cooperating teacher who was leading the lesson did not focus on it; in fact, it was this very omission that seems to have prompted the following reflections on how to plan scaffolded instruction:

> Because my CT conducted lecture-based lessons in all three of his classes today, ELL students in his classes would have benefited from a vocabulary list defining the numerous tier-two words, such as *revolution*, *boycott*, and *barter*, and tier-three words, including *salutary neglect*, he used throughout the lecture. A

> vocabulary sheet would have helped students review, as well as providing space for definitions and uses of the tier-two words outside of history.

Betsy made a similar statement:

> I think it would still have been helpful to explain how the word *relation* is similar to the word *related* and how that can be used to determine what is special about a set of ordered pairs.

As was mentioned earlier, TC journal entries rarely focused on the language in isolation. These teacher candidates independently noted clear instances of linguistic demand observed in class, and planned on how to design scaffolded instruction that would target this aspect of academic language.

Relating to Research Question 1, not all participants were able to expand their definition of academic vocabulary to include Tier Two words in their description of linguistic demand. This was a common problem, leading to the low score of the 31 TCs in Phase One. It was less common in the case studies, but still evident, as Zach shows:

> Defining words, especially Tier Three words, is of the utmost importance and it should never be assumed that every student fully grasps the concept until they can prove it through some sort of assessment.

It has never been the position of the ALP that Tier Three words should not be taught; however, if they become the sole focus of instruction for ELs, all students, are less likely to be able to master the academic language of their discipline.

Describing and scaffolding sentence-level features. There were two instances where participants described linguistic demand at the sentence-level. Betsy wrote the following passage, which also addresses Research Question 2, as she described instruction that was

designed to aid in content acquisition and promote academic language development. The classroom teacher focused on the role of grammar in a math class, and how building syntactic awareness through math can lead to greater conversational fluency globally:

> Ms. C did a great job explaining conditional statements (i.e. IF this is true…. THEN this must follow…). These types of statements that illustrate cause and effect are essential in the English language and can be difficult for students to master. Overall, I was really impressed with the way in which she incorporated academic language into a geometry class and how she explained these concepts not only as they relate to math but also how they relate to conversation and the English language.

This participant clearly found an instance where math, often mischaracterized as a language-neutral discipline, could serve as a venue for raising syntactic awareness. River presented this eloquent summary of how she has come to realize the linguistic demand of History:

> This year I have focused a lot of the needs of ELL students because my teaching history methods course has had a guest speaker come to our class a couple of times, and I am also in a class on ELL students. I think this year for the first time I really got a grasp of the challenges ELL students face. My Bilingualism class had really opened my eyes to the obstacles, and it's not just Tier One words compared to Tier Two and Tier Three words that are problematic. Different levels of difficulty when it comes to vocabulary is simply the tip of the iceberg. For one, words are only a part of language. What about grammatical structure? We talked a lot about nominalization of words and how certain words can be both a noun and a verb tense. For example, the word "change" can be used in a sentence as a noun

> (*I'm nervous about a change in my class schedule*) or as a verb (*She had to change her class schedule*). I never thought about this before, and that maybe ELL students should be instructed on grammar as well. This thought has never occurred to me before, and I never realized how problematic it could be.

River brings together both word- and sentence-level features in this passage, as she addresses Research Question 1, describing linguistic demand. She is a particularly interesting individual for a case study, given her multiple exposures to linguistically relevant pedagogy. In addition to the ALP, she took a class on Teaching Bilingual Learners, took part in the infusion of SFL into her methods course described above (Schall-Leckrone & McQuillan, 2012), and was placed in linguistically diverse field placements. In addition, she studied abroad for a semester. Thus, it is no surprise that her realization of the linguistic demands of AL should be more fully realized than that of other participants.

Many of the participants recorded instances of scaffolded instruction designed to aid in content acquisition and promote academic language development. Some of these focused on instances beyond the Beginning Framework for Teaching Academic Language. River also reflected on the importance of learning about students' background knowledge:

> I have also really loved my P2 because I am taking a class on bilingualism and it has been so useful. I have learned lots of other areas where students will get stuck because they are ELL students, and not just about Tier One or Two or Three words. I never realized how important background culture is to a student's schooling experience. This has also made me realize how important it is to get to know your students and their backgrounds so you can be a better educator. I think

> that by taking this class I will be more aware of the challenges students face in high school.

This awareness, echoed by other participants, embodies sociolinguistic consciousness, the first element of Lucas and Villegas' LRP. While sociolinguistic consciousness was not one of the elements selected for the ALP intervention, due to the limited duration of the trainings, Landers College students did show instances of the construct, which, according to Lucas and Villegas (2011):

> entails (1) an understanding that language and identity are strongly interconnected and (2) an awareness of the sociopolitical dimensions of language use and language education. (p.302).

For example, TCs in Phase One expressed that "ELL students often feel out of place in a class where most students are fluent in English." They discussed the need to choose your cultural metaphors carefully in a culturally diverse class. While some journal entries indicated a lack of cultural competency, e.g., comparing ELs with "normal students," several TCs were careful to point out the distinction between immigrant, bilingual, and EL in language that was not othering. These entries indicated that some of these TCs were developing sociolinguistic awareness. Betsy tried to "use the students' backgrounds in the examples I use in class to engage students more in the lesson;" Zach stated that "it is the teacher's job to talk, one-on-one, with the student and get to know them;" and River reflected that "one way to respond to ELL students when it comes to classroom management is by talking to the kids on an individual level at times, such as during group work, by getting at eye level with them and speaking quietly."

These reflections run counter to a tendency noted in the literature, that mainstream teachers may refrain from interacting with EL students (Verplaetse, 2000), and hold lower

expectations for them (Harper & de Jong, 2004; Villegas & Lucas, 2002) and they indicate that these TCs will be applying other skills and orientations in the LRP as they plan appropriate instruction.

Math, history, and science teachers, both in the scholarly literature and during the ALP raised a common objection: teaching English is not their responsibility or skill set. Two participants' responses addressed this, embodying Fillmore and Snow's (2000) position that all teachers are language teachers. Betsy eloquently addressed the importance of a classroom that plans to support literacy through mathematics instruction in a way that builds skills necessary for success in the math classroom.

> Writing is a necessary skill in all content areas. There is a poster hanging in each classroom that I only really noticed this week. It says, "Writing is as important in math as in any other discipline. The most amazing idea is worthless if you can't effectively communicate it to the rest of the world." I love this poster because it serves as a constant reminder to students that language skills are essential in each content area, even an area like math which most students think does not require good writing skills. Being able to effectively justify one's ideas is just as important in Math as it is in English, and students need to realize this. Teachers also need to realize this and encourage their students to continue to develop their language skills so that they can perform better in all subject areas.

If math is seen as separate from writing, then real world application of math skills will be difficult. Rarely does life present naked numbers or carefully structured word problems; success with math is more than procedural skills and fluency. The Common Core State Standards also express the need for conceptual understanding and application (CCSSO, 2010). If students

cannot decode the word, encode the problem, and explain their answers, either orally or in writing, procedural by itself is unlikely to lead to real success. Society rewards people who can frame problems, solve them, and can then explain how they did so, and why it is important, i.e., "being able to effectively justify one's ideas." Naked numbers do not convince: clear explanations do. As this journal entry indicates, it is the job of math instruction to build this skill. It is a fair interpretation to say that Betsy is planning appropriate instruction, at least at the conceptual level, and thereby addressing Research Question 3.

In another example, Zach is able to highlight the role of language in promoting fluency in the scientific discourse:

> Many science teachers might see root words to be a topic for an English class or a Classics Language course. However, I think that it's important, if such words are as common in the subject matter as they are in Biology, and it is known that the majority of students aren't learning them anywhere else, for a science teacher to take it upon themselves to help students learn these roots and to identify these roots. It might take some extra work but, in the long run, it's beneficial for the students.

This passage notes the skills needed to plan effective instruction: first, attention to the linguistic demand (Research Question 1); next, needs assessment ("Students aren't learning them anywhere else."); and finally, planning to support them though instruction (Research Question 3).

Journal entries addressed all research questions, to different degrees. They recognized some level of linguistic challenges, noted sheltered instruction, and described a lesson with scaffolding for students' acquisition of academic language. Participants did not discuss linguistic

challenges and scaffolding techniques in isolation; rather, they perceived the challenge because of the cooperating teachers' focus on it. Thus, the data presented here served to answer all three questions at once, and were labeled as such.

Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed? The journals give evidence that teacher candidates were able to move beyond what Snow, Met and Genesee (1989) called *content-obligatory* language: the Tier Three words that challenge all learners. However, they were far less likely to describe sentence-level challenges. The six case study participants provided a dozen instances of attending to linguistic demand in the classroom. These were focused largely on morphology and vocabulary, but very occasionally also on syntax, writing, and the sociocultural challenges that ELs face in class.

Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development? The six case study participants recorded and commented on several instances where teachers used a variety of representation, sheltered their speech, and rephrased and paraphrased between spoken and academic discourses. Teacher Candidates were most successful at focusing on the language of instruction when the instruction they were witnessing was focused on language. There are two primary possible interpretations for this: first, that they could not perceive the linguistic challenges until the mentor teacher pointed them out; and second, it is possible that, as apprentice content experts, they were so intent on presenting the content that they could only see the language as a part of the topic; they were unable to parse it, label it, and describe it in linguistic terms. Either way, this has implications for the importance of a good mentor teacher, who can give content-area examples to TCs.

Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development? Participants reflected many times on how recognition of linguistic demand would shape how they would plan instruction. For example, they noted and commented on the importance of engaging EL students, and not marginalizing them, on the need to learn about ELs background, and to make them feel included. Thus, journals indicated that these participants were able to recognize linguistic demand and had an awareness of what good sheltered instruction would look like. The Cross-Case Analysis presented at the end of this chapter will help assemble these findings in a matrix.

Lesson Plans.

While journals were designed to assess teacher candidates' skills in perceiving linguistic challenge and scaffolding instruction, the lesson plans were intended to address the third research question: To what degree can secondary teacher candidates plan scaffolded instruction designed to aid in content acquisition and promote academic language development? In other words, to what degree could the teacher candidates use their knowledge to design instruction that targeted a linguistic demand, sheltered content, and promoted academic language? On the whole, the lessons submitted by these participants during their prepracticа were not effective in these regards, even by their third prepracticа.

Prepracticum students are required to use a lesson plan template with required sections for goals, statement of content covered, content objectives, language objectives, accommodations for diverse learners, lesson procedure, materials, and assessment. In order to address the research question, this study will focus primarily on the language objectives and lesson procedure.

Many of the participants were unable to create a high quality language objective, a goal that would have met Research Question 1, describing linguistic demand, and helped to meet Research Question 3, planning instruction designed to aid in content acquisition and promote academic language development. Teacher Candidates were introduced to language objectives in the first AL training; the concept was reinforced in the second and was the central focus of the final training. The concept of language objectives began with the SIOP, but was extended. The language objective is a description of the language that students need to complete the assigned tasks in a given lesson. Like content objectives, language objectives should be stated clearly and simply in student friendly language. Students should be informed of them orally and in writing. When developing a language objective for a lesson, participants were asked to think about what their students would be doing in class to develop their language skills in reading, writing, listening, speaking, and thinking. What exactly was the language they will need to do this? What aspects of this language would need support? A high quality language objective begins with "*students will be able to…",* and names an active performance, avoiding words like understand, learn, or review. Because it is observable, the students can be assessed *a posteriori* to indicate whether or not they have attained mastery. A high quality language objective should focus on a useful skill for this text and others, and is matched to the student ability: challenging but attainable. A high quality language objective would focus instruction on at least one level of the Beginning Framework for Teaching Academic Language presented in the trainings: vocabulary, word-level, or sentence-level features of the lesson.

Even by the third prepracticum, participants had difficulty writing language objectives that focused on a linguistic demand, beyond Tier Three vocabulary. For example, Zach, whose

journal showed good attention to morphology and vocabulary, presented the following language objective:

> Language Objective: Like that majority of science language, many of the names of organelles are new to both ELL and non-ELL students. By simply learning the existence of these words, ELLs will be increasing their vocabulary.

In addition to failing to use an active verb, this language objective simply restates the content objective: teach the name of organelles. The concept of organelles is challenging to all learners because of its nature. This lesson does nothing to examine and ameliorate linguistic features of the learning activity objective for any learner. River, whose journals in general were outstanding, submitted a similar entry:

> Goal: Describe the purpose and functions of government.
>
> Language Objectives: Academic Language: Legislation, judicial, executive, Constitution, House of Representatives, Senate, Congress, terms, amendments, bills, articles, preamble, oath.

This submission is a retreat to a traditional content area lesson. The vocabulary focused only on content-obligatory Tier Three words, and there was no mention of how students will interact with them.

Some participants thought to incorporate a scaffold, but did not provide the necessary support or preparation to make it work. One common support was group work. According to Zwiers (2008), these smaller-scale discussions, when properly supported, can be very effective for building thinking, language, and content understanding in all students (p.135). However, without teacher modeling, careful preparation, and an *a priori* focus on the academic language needed to structure a discussion, group work can go awry, and ELs are likely to receive little

benefit. However, many of the participants wrote lesson plans that simply sent students off into group work with little preparation. Betsy, in her third prepracticum, submitted the following language objectives for a linguistically diverse class:

> Goals: Students will both review classifying triangles with side length characteristics and learn how to classify triangles with angle characteristics.
>
> Language Objectives:
>
> 1. Students will be able to understand and apply the meaning of vocabulary words such as *congruent, acute,* and *obtuse* to classifying triangles.
> 2. Students will discuss with other classmates how they classified specific triangles.

The first language objective falls short on two counts: the verb "understand" cannot be easily measured in class, and the vocabulary under study is only Tier Three. At first glance, the second language objective incorporated language in the verb "discuss," and the idea of working in groups can be seen as a support. However, without modeling of the linguistic demand, it is uncertain that peers would have been able to give an EL the linguistic support needed to learn the content, accomplish the task, and acquire the academic language used in the lesson. The lesson procedure made no mention of such scaffolding:

> While completing the warm-up, students will be expected to work individually. When going over the warm-up and subsequent notes, students will be quiet, but also given the opportunity to speak when I ask questions to the class. During the group activity, students will first work individually, and then discuss with other members of the class what they found in their pictures. At this time, I will walk

> around the room, making sure that all students are on task. When students then work on class work, they will be able to discuss solutions with classmates. The exit slip will be done quietly and individually as well.

At no point in the description of the individual work, group work, class discussion or exit slip was there mention of the kinds of linguistic scaffolding that would have supported ELs to achieve this lesson. A more successful lesson plan might have a language objective such as "in small groups, students will be able to discuss how they classified specific triangles, using this phrase: *based on the following criteria…."*

Miranda submitted an English lesson plan that focused solely on how students would interact with the content objective:

> LOs [Language objectives]
>
> [SWBAT]…define the concepts of happening-truth and story-truth.
>
> Instructional objectives
>
> [SWBAT]… arrange the series of events surrounding Kiowa's death in chronological order. …compose of list of all of those people who could assume blame in the instance of Kiowa's death.
>
> …write at least one paragraph explaining why they believe *Field Trip* is either story-truth or happening-truth.

The instructional objectives went further in describing what students will do in the classroom. The verbs "arrange," "compose a list," and "write," indicated what students will do. However, the lesson procedures provided no indication of how academic language would have been supported or promoted during the lesson (note, all ellipses are in the original text, nothing has been omitted):

1) Once students are seated, I will go around the class and arrange students into groups of four. … Then I will distribute a packet of events to each group…. I will ask them to put them into order on their desks, and that they should reference their books in order to do so. (You may now begin.). 2) Once each group is done, I will go around the class and have students share the order of events. 3) I will split students into pairs (within their groups), and have them use a sheet of blank paper to list all of the people that one could blame for Kiowa's death (p. 177), including Lt. Cross & the unnamed boy. I will also have them write why the Lt. and the boy blame themselves, and to choose one of the other people/things in the list and explain why one could blame that/them. 4) I will ask each pair to share one of these explications on blame.

There are several places in this sequence where explicit attention to academic language would have helped students to succeed in this lesson and develop their academic language proficiency. For example, in the second step, students who were presenting the chronological order of events could have been presented with sequential transitional words to help them format their response. In addition, having a list of cause and effects terms on the board would have supported students during the third step, as they wrote about and shared aloud how and why to assign blame to characters. Similar examples were covered in ALP trainings, but they failed to transfer over into Miranda's lesson plans.

Perhaps the best example of a language objective submitted came from Zach, who wrote the language objectives on organelles discussed above. This lesson focused on morphology to help teach words which are common in discussion of the Ocean Biome:

> Language Objective: ELLs will look at root words and use their meanings to determining the meaning of larger words that appear in the context of the lesson. Ex: the prefix ‘a’ means ‘not or against’; the root word ‘photo’ comes from the Greek ‘phos’ or ‘photos’ which mean ‘light’. Thus, aphotic has to do with ‘no light’.

This language objective indicated what students will be able to do, focused on the language of instruction, and presented a way to address that language to both teach the concept while simultaneously teaching a skill that can be used in other disciplines.

This section of this study, along with the classroom observations below, was designed to answer Research Question 3: how well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development? Based solely on analysis of the lesson plans that participants submitted, they were not able to do so. A possible explanation comes from an interview done with one of the participants during her full practicum:

> I’m pretty good at formulas. So once I figured out the formula for a lesson plan, then I can do it every time. So, I don’t really, I mean writing objectives… like, I wrote four lesson plans in my preprac… I’m writing these easy [*sic*] but language objectives are really hard…. And that was what I felt like I could have had more help with. Like if I could have wrote [*sic*] better language objectives I would have understood what I was doing with my modifications…. The language objectives, when you make them really specific, then you know what you’re doing.

This response reflects two important points. First, teacher candidates needed more support in writing language objectives. This could mean a better understanding of linguistic demand, or it

could mean more analysis of how linguistic demand can be the focus of instruction. Secondly, examining lesson plans may not be a good measure of effective instruction. Many of the lesson plans submitted support this assertion: teacher candidates are following a formula, and lesson plans vary little from one semester to the next. It is possible that a written lesson plan is more of a literacy practice than a measure of ability to teach, and that the classroom observation will be a better measure of this question.

Interviews

Interviews were collected from six case study participants during their full practica. Interviews were conducted on site in the classrooms where they were finishing their 14-week full practica. Each interview occurred immediately following an observation of their teaching. These data are designed to address the first research question: To what degree did secondary teacher candidates describe linguistic demand of the class? Five major themes emerged from this data set:

- Awareness of the linguistic challenges of academic language
- Sociocultural consciousness
- Helpful strategies for working effectively with ELs
- Challenges in the TE program Recommendations for the TE program

The following section discusses the first three of these themes as they relate to the research questions, provides instances, and attempts to relate them to the relevant literature and Phase One findings.

Awareness of linguistic challenges. The first analytic theme to be discussed is that of awareness of the linguistic challenges of academic language. This was a particular challenge for students at Landers College. They are, in general, White, monolingual English speakers who are proficient in the language of school, and thus any instance of awareness of these challenges makes them more able to understand the challenges that ELs will face in their classes, and to plan appropriate supports. This is one of the foundational skills in Lucas and Villegas' linguistically relevant pedagogy (2011). The authors describe its importance to the arc of planning and delivering an effective lesson:

> Designing accessible and rigorous instruction for ELLs requires not only an understanding of students' linguistic and academic abilities but also the skill to identify the challenges they are likely to face in classroom activities that require the use of English. To promote language development as well as academic content and skills development, teachers of ELLs must be able to identify the linguistic demands of oral and written discourse. (2011, p. 305)

The six case study students demonstrated several instances of this awareness during their interviews, which, based on this analysis, are divided into two subcategories: linguistic load, i.e., how language can interfere with instruction; and sociolinguistic issues for ELs in mainstream classes.

One of the major goals of the ALP was to help teacher candidates recognize the linguistic challenges of their discipline. Very often, participants' perceptions of the challenges of academic language focused solely on content-specific, Tier Three words like *allegory, quadratic, allele* or *imperialism*. These words are challenging for *all* learners. The ALP attempted to make the challenges of academic work in the L2 visible for participants. Evidence collected during the

case study interviews showed that this partially accomplished. Betsy's statement clearly indicates that the concept of tiered vocabulary has transferred: "I think the biggest thing is people skipping over the definitions of like Tier 1 and 2 words to go straight to Tier Three." This expanded focus on vocabulary was present in other interview responses as well:

> Alice: It makes you examine aspects of language that we as native speakers might take for granted, like brick and mortar words. It makes you think about other words they need. to connect those ideas and concepts and, like, that definitely helped me, like, look more critically at language and think more carefully about what I should be explaining to them I think.
>
> Miranda: I had to talk a lot slower with my ELLs this semester. Or not slower, but clarify things more. There's a lot of vocab like people brush through but it is really important.
>
> Zoe: What I try to do is verbally define all the words with them that I think that will give them trouble.
>
> Betsy: I've always been aware of the big words that would be hard or the new words like um, something like "function" or you know that doesn't necessarily appear as readily as in another context, or um "variable" or um trying to think, like "inverse" things like that that while they're words you know that are used outside of math, they are mostly used inside of math. So, I think I've, I was always aware of those words and like how to kind of break them down. But I think what the Academic Language Project helped with was kind of bringing light to the words that aren't as readily noticeable and much as "Oh I need to define this." Or "Oh this is going to be a stumbling block for them."

> River: History is hard because it all happens in the past tense.
>
> Zoe: The ALP has been good in bringing light to those words that you kind of take for granted as a native speaker, and even as a good reader. I mean obviously we all went to [Landers] so we were all good at school, but um you know just taking those words that you use a lot or you see a lot for granted where other kids might not know them or might be too embarrassed to ask what the definition is if they feel they should know it or should have learned it.
>
> Betsy: People think that math is universal…. So I think maybe there are some concepts that are universal, but it's really not true on all of the concepts because you're always like, I don't only put numbers in the board and that's it. If I'm explaining it, I'm speaking, I'm using language.)

These responses echo journal data: participants attended to the linguistic demands of their lessons. However, some of the interview responses indicated that the full practicum teacher candidates were thinking about how their instruction might ameliorate it.

> Miranda: Like words that like I would assume native speaker understands because they have been native speakers, and words I wouldn't think necessarily an ELL student wouldn't understand, so um, it's a good example. You know, like *theme*. Let's pick out some themes involved in history. Theme is definitely a word I would expect a native speaker to know, and probably a word that for an ELL would be a mortar word, because if they don't understand the word *theme* which a lot of them don't in my class, like, then they aren't gonna understand what I'm talking about. So, you know I tend to be more critical about the language and,

> like, explaining more language. I mean I'm, you know, like, I think it was really helpful to think about what needs to be explained.
>
> River: I just think when it comes to taking history, the history part is almost separate at times, I feel like I have to teach language too.
>
> Betsy: I think that the real world exposure you get to the themes of academic language is really helpful because it helps reinforce. It seems like common sense, but once I got into the classroom, and saw students interacting with the language, and the difficulties and their uncertainty, I might see this naturally, but it is something I need to support them in the classroom.

Similar to journal responses, interviews with full practicum participants indicated that students intended to support a wider range of vocabulary. Several participants intended to shelter their speech for ELs in the classroom. The Case Study Observations (below) will examine whether or not they were able to enact this intention in the classroom.

Every student who participated in an ALP training heard the phrase "double the work" many times. This means that for native English-speakers, the language of instruction is transparent, and the challenges of the classroom arise from the difficulty of the content itself. However, ELs need to first decode the language of instruction before learning the material presented. Two case study participants reported in their interviews, independently and unprompted, that after watching ELs struggle in class, they now understood that term. Zoe stated it this way:

> First [students] are going from [their] native language to whatever the hell this is that we are looking at, and then you are doing that second process which, English native students are already getting at: "what does this complicated language

> actually mean?" I don't want to say it is double the time, but it is double the process… they are a step behind, to get up to where everyone else is.

Such comments and interview results address Research Question 1: To what degree did secondary teacher candidates describe linguistic demand observed in class? These data indicate that participants emerged from their undergraduate experience able to articulate some of the challenges of academic language for ELs and their role in teaching it. While their descriptions of academic language did not include sentence-level challenges, this could have been a limitation of the oral interview format.

Sociolinguistic consciousness. Like prepractica journals, participants' interviews reflected sociolinguistic consciousness. Teacher candidate interviews touched on the challenges of acculturation, assessment, and the role of L1 in the classroom. Sociolinguistic consciousness was not one of the primary goals of the ALP, due to the limited scope of the intervention, but the trainings did allude to, and were framed by, the sociocultural issues that impact ELs in mainstream classrooms. Several of the case study participants expressed attitudes that indicated this understanding and awareness. In some cases, it was a statement of affirmation, e.g., Zoe stating in her interview "how wonderful it is to be bilingual," or River pointing out that the term "bilingual is not the same as LEP." It appears that this framework may have impacted how these teacher candidates will pursue their teaching practice.

Several participants expressed opinions that indicated a positive attitude towards L1 in the class, indicating that they valued linguistic diversity and the role of students' first language in their learning. This embodies Lucas and Villegas' (2011) description of sociolinguistic consciousness:

> [Teachers] recognize that students cannot simply leave their home languages and dialects behind as they develop facility with the language of school. They recognize the importance of finding ways to consider students' linguistic backgrounds in their teaching. Acknowledging and building on students' languages sends the message that their identity outside school is important within the school context. (p. 303)

Two participants expressed that, during the 10 weeks they spent in their full practicum, they allowed students to use L1 in the classroom, as long as it appeared to be on task. River, a history major, stated: "A lot of them really need the help from their classmates in terms of translating and understanding what's going on, so you know sometimes it gets to be too much, and I definitely will let them know." This statement of the positive role of L1 in the classroom stands in stark contrast to the 2002 Massachusetts ballot initiative that required that all children be taught in English. It is also a refreshing contradiction to research showing that 40% of mainstream teachers believe students should not use their first language in the class (Reeves, 2006).

When asked what was most effective in working with ELs, Betsy, who was teaching in a largely White, monolingual suburban school, stated:

> One of the biggest things I've found to be particularly helpful with them is just the attention. I feel like in a lot of classes they don't really get, I think maybe people either shy away from something so different, or they don't know how to interact or act that way. I don't want to call them out for being different, [but] in a lot of cases the kids want to be recognized or at least be acknowledged that "Oh, where do you come from?" or "How long have you been here?" Even in the very

> beginning of the year, I asked the student in the back how he pronounced his name and he was really excited. I think a lot of people are hesitant 'cause they don't want to seem like "Oh I don't want to single you out." But I think they don't see it as that. I think they see it as "Oh, someone's paying attention."

This speaks to the value of linguistic diversity, the second element of Lucas and Villegas' (2011) framework for linguistically responsive pedagogy. The authors describe this as a teacher's awareness of his/her attitude towards an LEP student's language and how a dismissive or disrespectful attitude can impact their relationship. Furthermore, Lack of value for and recognition of ELs' linguistic resources may also translate into lowered expectations and unchallenging instructional practices. Perceiving students as linguistically deficient, teachers are likely to ignore or marginalize them in class; provide them a simplified, unengaging curriculum emphasizing basic skills; and focus primarily on controlling their behavior. On the other hand, when teachers show respect for and interest in students' home languages, they send a caring and welcoming message that is more likely to encourage their engagement in learning (p. 303).

Betsy's reflection arises out of her own experience as a language minority student when she was studying abroad.

> When I was in Germany I loved just any little attention or help, because otherwise you're in this sea of things that you don't really understand. Even though I was kind of singled out when I wasn't with the rest of the class it was so nice to have somebody be like "Oh, I'm showing you that I care by, you know getting on your level," so to speak. I think that you know the pre-prac experience and everything does a decent job… we had to do the ELL interview and things like that, that I think we're all really good, but maybe more of that or kind of just bringing

> awareness to that. I think just bringing more awareness to, um, the social interaction piece, as opposed to just teaching the content.

Through her own experience as a language minority, Betsy was able to see the value in reaching out and proactively accepting students, not in spite of their differences, but because of them.

Participants also focused on how language and culture can confound assessment. For instance, River, who was teaching history in a classroom for new arrivals, all with limited English, noted that the individual test format, such as the MCAS, was culturally incompatible with her Asian students, who use L1 and teamwork to collaboratively succeed in her classroom. She also raised the difficult issue of how to assess student learning in a way that does not implicate limited English proficiency:

> It's really hard to grade them. Because like you really want to grade effort and you don't want to count language against them, but then sometimes, you'll feel like you really need to have done everything you can to prepare them for a quiz or test, but they fail or don't do well.

Betsy also pointed to the challenges of assessment for ELs in mainstream classes, noting that tests, word problems, and ELs' approaches to such tasks reflected missed steps. "For example if I say: 'Write this formula and graph it,' they'll miss the 'and graph it.' They miss some of those nuisances that other people pick up on." Betsy's comment recalls the phrase "double the work," i.e., that construct-irrelevant challenges of decoding L2 text impact ELs performance on these assessments.

These findings address Research Question 1: how did secondary teacher candidates describe linguistic demand in the classes they observed? During conversations, Landers teacher candidates in their full practica articulated the challenges of vocabulary, the need for

comprehensible input, and the importance of linguistic diversity and sociolinguistic consciousness. The results of the Observations indicated how much of this was evident in their practice, addressing Research Question 3.

Case Study Observations and Analysis.

Observations of the six case study participants were done on site in the secondary school where they were completing their 14-week full practicum. These data are intended to address the third research question: To what degree can secondary teacher candidates plan scaffolded instruction designed to aid in content acquisition and promote academic language development? Permission was given for observations, but the classes were not video or audio recorded. The observer kept written notes in categories based on the Lesson Plan Rubric:

- instructional supports for content acquisition, i.e., sheltering content,
- assessments for content objectives,
- instructional supports designed to promote academic language, i.e. scaffolding, and
- assessment of language objectives.

Like the rubrics themselves, categories were designed to allow the researcher to disaggregate instructional practices that were designed mainly to promote content acquisition for mainstream students (just good teaching) from those defined to support ELs. The observation notes included the language status (e.g., LEP, FLEP, fluent English, fluent bilingual) of the students in class (based on participant report), and a seating diagram. This section will recount the classes observed, and describe instances of sheltering content and scaffolding academic language. Each case study participant was given a pseudonym.

Zach- Biology major. Zach attended all three sessions of the ALP. In the second ALP training, his group did good work creating graphic organizers and deciding on Tier Two words

that would complement them in scaffolding AL. The ALP at Landers College had no infusions into the science area courses.

Prepracticum Materials. This analysis reviews Zach's prepracticum materials, i.e., the journals and lesson plans that he submitted during his three prepractica, semesters when he was largely observing and would have taught only a handful of lessons. Zach's first semester was in a large, diverse, urban high school. His second placement was in a small, elite, private, school for girls. His third semester was in a large, diverse, but very successful exurban high school.

Table 12

Zach's Combined Prepracticum Journal Scores

Journal Category	Zach's score	Max score
Attend to Linguistic Demand	3	5
Recognizes Language Supports	1	5
Suggests Language Supports	0.67	5

Zach's journal scores are shown in Table 12. His journals showed attention to the linguistic demand, insofar as he was able to isolate challenges in the discourse of Biology that went beyond Tier Three words. Even when he was observing in an elite school with very few ELs, his journals attended to the impact that unsupported Tier Two words can have on learning and valid assessment for all students, but for ELs specifically. He mentions the importance of repeated interaction with a new vocabulary words:

> From my own experience, my nightly A.P. Biology homework was to copy down a list of Biology words and definitions from the book. Today, I can't remember a quarter of those words. Of the words that I do remember, I can almost guarantee that I "memorized" none of them. Of the words I remember, I only remember because I used them. I used them over; I experienced them; I heard them; and I

> used them again. Personally, I think that's how words are learned and, specifically, how science words should be learned.

His journals seem to encourage scaffolded interaction with authentic scientific discourse. Specifically, he observed that students looked at the words "photic" and "aphotic," which are common in discussion of the ocean biome:

> the prefix 'a' means 'not or against'; the root word 'photo' comes from the Greek 'phos' or 'photos' which mean 'light.' Thus, photic has to do with 'light' aphotic has to do with 'no light.' In many cases, the meaning of the abbreviation can actually give a deeper insight into what the abbreviation is or does. As an example, most students learn that the ending 'ase' signifies an enzyme. TH asking a student what PFK is might receive a great deal of blank stares and pages. However, asking students what Phosphofructokinase is might, at the very least, receive the answer of 'an enzyme.'

Here, Zach talks about how examining the derivation of words is, in fact, a valid topic for a science lesson:

> Many science words are either rooted in Latin or Greek or actually are Latin or Greek. For instance, scientific species names are Latin, even *Homo sapiens.* Many science teachers might see root words to be a topic for an English class or a Classics Language course. However, I think that it's important, if such words are as common in the subject matter as they are in Biology and it is known that the majority of students aren't learning them anywhere else, for a science teacher to take it upon themselves to help students learn these roots and to identify these

> roots. It might take some extra work but, in the long run, it's beneficial for the students.

Zach expresses an awareness that it might be more difficult for ELs to understand derivational morphology that would be readily apparent to native English speakers, and suggests the use of visuals to support it:

> Many English speakers might see the word "metal" as a root word in metalloid and assume a connection. An ELL, on the other hand, might have no clue what metal is or how to make the connection between metal and metalloid. However, by providing a visual, whether it be an image or a real object, the ELL student has a reference point. . For example, bringing in a piece of Aluminum foil and calling it a metalloid allows the student to equate metalloid with a tangible example for which there might be a direct translation in the ELL's primary language.

These excerpts show attention to morphology and word derivation. Zach's journals indicate some awareness of the difficult language of science. This is a positive first step: too often students who are proficient in a discourse are unable to perceive its challenges, or to see how its challenges are even greater to students learning in L2. Zach can see how difficult scientific vocabulary is, and begins to see how a linguistic approach and elements of sheltered instruction could help to scaffold students into this discourse.

However, he has difficulty transferring this awareness to the lesson plans that he submitted. The average scores for Zach's lesson plan are listed below in Table 13.

Table 13

Zach's Combined Prepracticum Lesson Plan Scores

Lesson plan rubric category	Zach's Score	Max Score
Language objectives that describe what language the students will learn	2	4
Language Objective is observable, demonstrable	1	3
Instructional Supports for language acquisition	1	3
Assessment for language objectives	0.56	3

Zach's attention to morphology in some lesson plans led to a slightly higher score in the first Lesson Plan category of language objectives, which describe what language the students will learn. There is one instance in which Zach wrote a language objective focusing on morphology:

> ELLs will look at root words and use their meanings to determining the meaning of larger words that appear in the context of the lesson.

However, his other language objectives limit themselves to Tier Three vocabulary words:

> Like that majority of science language, many of the names of organelles are new to both ELL and non-ELL students. By simply learning the existence of these words, ELLs will be increasing their vocabulary.

As his stated objective makes clear, the names of organelles are challenging for all students, not only those who are still developing their English. This is a key limitation in the work submitted by teacher candidates in relation to academic language: a tendency to revert to content area discourse and retreat from the challenges of ELs. The *Journal Rubric* benchmark "Attention only to Tier Three vocabulary" was written to account for this pseudo-attention to language, and it is the feature that kept the Phase One median journal scores for the 31 teacher candidates at 3.

Zach's language objectives also tend to focus on how he would explain a concept, rather than on what the learners will do to indicate their understanding. His explanation focuses solely on an analogy of the concept at hand, and completely overlooks the linguistic challenges:

> ELLs will use both verbal and visual analogy to solidify definitions of Tier Three words. Example: By equating a Lysosome with the Maintenance Staff of a building while also defining a Lysosome as the organelle responsible for breakdown and transport of undigested material to the cell membrane, not only can the student make a direct connection to what a Lysosome is and does but also have a more common, relatable example for understanding its function.

As it stands, this is "just good teaching." It is a clever way to illustrate a difficult concept, but it does not shelter the linguistic demand, nor does it give students a chance to develop proficiency in academic language. Such a lesson could easily incorporate metaphorical language, e.g., SWBAT write analogies between organelles and real life using the terms *like, as, and, but,* and *however.* The objectives cited above were difficult to assess because they were too abstract to lead to a measurable action. Zach's low score in the last category, Assessment for Language Objective, results from language objectives that were vague and often did not target language.

Zach's journals and interview show attention to the vocabulary and word-level demands of Biology. While he does not attend to sentence-level challenges of scientific discourse, he recognizes the challenge of scientific vocabulary. However, his journals and interviews discuss the challenge of scientific vocabulary for all students, without attending to the way that limited English makes this harder for ELs. In his favor, his recognition of the lexical challenges of Biology are coupled with a belief that it is the teacher's job to support students as they master this register, and he is able to see how morphological awareness can make content

comprehensible and scaffold students into discourse. However, his lesson plans and observation show little evidence of sheltering instruction or learning activities that scaffold students into the use of academic language.

Full Practicum Observation. This analysis now turns to Zach's full practicum observation, to see if the same challenges and tendencies noticed in his prepracticum continue or if his skills had developed. Zach's full practicum took place at a large, exurban high school that had just reopened after a lavish renovation. The observation occurred in December 2011. Since all of its students performed well on the MCAS, it was awarded Assistance Level 1[1]. In AY 2012, it serves 1,800 students in grades 9-12, 71% of whom were White. Only 3% of the students in the school were classified as ELL in 2011. Ninety-five percent of its students graduated in four years.

The Biology class was held in a well-equipped classroom, with its own lab area. There were no print visuals, but there was an expensive anatomy model that sat in the corner. There was an LCD projector that was turned on and connected to a laptop. Of the 12 students in the class sitting around six tables, seven were White, two are Asian, two are Black, and one is Latino. One of the Asian students appeared to have severe special needs, and, according to Zach, required an in-class aid and a mobility device.

There were no objectives on the board. Zach's PowerPoint guided students through a Do Now activity that asked them about their working conditions: "where do you like to study?" The lesson related to the function of coenzymes, and he was attempting to develop a metaphor about

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[1] Massachusetts' DESE Accountability System places schools and districts on a five-level scale, based on absolute achievement, student growth, and improvement trends as measured by MCAS. Level 1 schools are meeting AYP, Level 2 schools are not. The lowest performing 20% of schools are Level 3, and Level 4 schools are a subset of Level 3, representing the state's most struggling schools. Level 5 schools are placed in receivership MDESE, (2014).

the temperature and acidity needed for optimal enzymatic function, but he had not yet announced the topic of the lesson, and students seemed a bit confused. Students had a hard time with some of his oral prompts, which he needed to rephrase twice: "What gives you your best work?" and "What conditions are less than ideal?" However, these rephrasing relied on vague subjects, and awkward phrasing ("less than ideal"). He needed to give his own preferences as an example. After a few minutes, he related this to the topic at hand- the conditions under which enzymes work best. He gave examples on the PowerPoint and guided students through them with questions.

As Zach gave temperatures in Celsius and Fahrenheit, he pointed out that many students come from countries that already use the metric system, so they would be more familiar with Celsius, "and that's a good thing!" There were many examples given, and there was ample rephrasing: "we can measure the pH; how acidic something is." There was also some modeling: Zach gave an example, synthesized it into a statement, asked questions on the example, and elaborated the answer with "because."

> PH. That means how acidic something is. It measures the hydrogen ion concentration. What kinds of things are acidic? Coffee, lemons, soda… so these things are acidic because of the concentration of hydrogen ions.

Zach projected examples onto the whiteboard, and then marked them up on the board, allowing him to mark up the text, providing a good visual. At one point, he walked them through several graphs of enzymes and how they react at different temperatures, then he paired students up to try to calculate a similar problem on a worksheet. The worksheet presented a graph and students were asked to fill in the missing values. "OK," he said, "now turn to the person next to you and you guys will work together on this worksheet." The two Asian students worked together. The

student with special needs worked with the aide. Students seemed unsure how to start, and Zach began to go around the room, starting with a pair who asked him a question. As he went around, he helped students figure out the answer by pointing and asking questions. The first four students he helps were able to complete the sheet, but the Asian students were confused and he spent several minutes helping them. As he attempted to help this pair, he realized that time was almost up, and he departed to the front of the class saying "one sec." He told students about homework and the bell rang before he could get back to the students he was working with, and before ever getting to the remaining six students.

Zach did incorporate elements of SIOP into his lesson: he attempted to link the concept to students' background knowledge (e.g., comparing enzyme conditions with students' own working conditions), and he gave many examples. However, these instances typify good science instruction, and do not shelter the content for ELs. There were many instances of key Tier Two words whose definitions might have benefitted the class in this class as well as in other content area classes: *structure, site, bind, coincidence, optimal, metaphor,* and *plateau.* Zach's journals, lesson plans, and subsequent interview all mentioned using morphology to promote academic language; but in this lesson, he overlooked the affixes in words like *denature*, *nonspecific*, and *coenzyme*.

There were no content objectives, language objectives, or agenda on the board. The class was predominantly lecture-based, and the PPT slides presented a lot of notes, with no note-taking sheets to adapt them or to help students organize or prioritize them. While a handful of students responded to Zach's display questions, most did not, and appeared disengaged. The long lags in answering his questions indicated that the students did not quite seem to be following him. There were no hands-on activities or experiments, and the pair work was the only opportunity for

students to interact with each other or with the language and content. The pair work activity needed better explanation and perhaps more scaffolding, based on the number of questions and the time he needed to spend with each pair. Students in this lesson did little reading, less writing, and still less speaking.

In Zach's post-observation interview, he reiterated how vocabulary is the greatest challenge in Biology:

> I'm aware most the words that I teach them are new. So I find myself taking the time, not only to go over the words that are new, but even words that I think they might not have come across before.

He also talked about how he and his cooperating teacher had begun to focus regularly on root words and affixes. When asked if and how the ALP trainings helped, he responded:

> I liked the strategies we did in the third session. And I did, I do think that the reflections that I did helped. If I'm being totally honest with myself, I do continue to reflect on the words. And you know look at the words that I'm using and break them down with the kids as opposed to just throwing them out there.

Zach's interview indicated that he came into the program with an awareness of how daunting scientific vocabulary could be. He felt that the combination of the ALP, his science methods course, and a literacy course he had taken had helped him to realize that school has its own language, and that students needed help using it. Yet, his observation reflected very little scaffolding aimed at ameliorating the challenges of academic language. It was mostly lecture, and while he employed several clever explanations of an abstract concept, there were very few linguistic scaffolds or attempts to shelter content. His pacing and his rephrasing helped make his speech easier to understand, but the class appeared to need more support. The group work

needed more structure, and this could have been attained through a focus on language. As it stood, the lesson preparation seemed to focus on how Zach would explain the content, rather than on what students would do in class, and how they would engage linguistically with the content. Clear language objectives focused on student interaction could have addressed this. A good objective could have been: "in groups, student will create 3 sentences explaining how environment impacts the function of enzymes using the words *faster, slower, higher,* and *lower."* This would have incorporated formative assessment and concentrated attention on student production of academic language. In sum, Zach's lesson plans and observation showed little to no scaffolding that would help students to master academic language.

In conclusion, while Zach had begun to perceive the challenges of academic language in his content area, this awareness did not help him reconceptualize how his practice could shelter these challenges or significantly promote academic language proficiency. This is despite ALP trainings that specifically targeted strategies needed to do so. Zach even mentioned the strategies provided by the ALP during the interview, yet these strategies were not apparent in his observation. Perhaps his inability to plan instruction that supported ELs is a function of his placements; even his first prepracticum semester in an urban high school was in an advanced class, and his subsequent semesters also showed little linguistic diversity. Without exposure to a class with students whose limited proficiency caused them to struggle, Zach had never seen instruction that supported the needs of ELs. As a result, he simply enacted the traditional methods of teaching science into which he had been so well apprenticed.

Betsy- Math major. Betsy is a math major who, in addition to attending ALP trainings, received infusions of academic language into her mandatory math methods course for secondary education majors. These infusions took the form of faculty-led modules that outlined

instructional practices that support academic language development. Several participants, including Betsy, took part in a post-observation reflection session with the math researcher working on the project, to reflect on the lessons they taught and how they could have been adjusted.

Prepracticum Materials. Like all the TCs in this study, Betsy's first prepracticum was in a large, urban high school. Her second was in a small, private high school that was 65% White. Her third practicum was in a public, suburban middle school with over 1,000 students, 77% of whom were White. In her prepracticum journals, Betsy was able to isolate vocabulary, word-level, and sentence-level features of academic language in the Math classes that she observed, as evidenced by her prepracticum journal descriptions. As Table 14 shows, her journal scores were quite high.

Table 14

Betsy's Combined Prepracticum Journal Scores

Journal Category	Betsy's score	Max score
Attend to linguistic demand	5	5
Recognizes Language Supports	4	5
Suggests Language Supports	3	5

Her journal entries described instruction that focused on conditional statements and on unpacking math symbols into mathematical discourse. She also pinpointed several pertinent features of academic language in the class that could have been better supported, e.g., "I think it would still have been helpful to explain how the word 'relation' is similar to the word 'related' and how that can be used to determine what is special about a set of ordered pairs."

However, her lesson plans showed little evidence of a developing sense of the linguistic challenges ELs face in a math classroom, or of the challenges presented by the discourse of

math. Her average scores for the lesson plans she wrote during her three prepractica are presented in Table 15Table 15. These scores, taken together with her journal scores, illustrate a common pattern seen in the sample of teacher candidates included in this study: while journals indicated a growing awareness of the linguistic challenges of their discipline, teacher candidates were having trouble designing lesson plans that could support them.

Table 15

Betsy's Combined Prepracticum Lesson Plan Scores

Lesson plan rubric category	Betsy's Score	Max Score
Language objectives that describe what language the students will learn	1.45	4
Language Objective is observable, demonstrable	1.34	3
Instructional Supports for language acquisition	1	3
Assessment for language objectives	0.56	3

For example, Betsy wrote two language objectives in a lesson on graphing linear equations. This is the first:

> Students will further develop their understanding of the terms x-intercept and y-intercept. These terms will be both described algebraically and identified on a graph. Students will also understand what it means for an equation to be a linear equation by seeing how the graph of a linear equation is always a line.

As a useful language objective, this had several shortcomings: first, the verbs "understand," and "seeing" are not observable; more importantly, it only restated the content objective, ignoring what language students will need to understand pro produce as part of this lesson. Had Betsy thought about exactly what language students would need to hear, say, read, or write, she could have compared that to the students' language proficiency in each domain and researched appropriate scaffolds for the lesson.

The second language objective submitted in this lesson plan follows here:

> In addition to deepening their understanding of these terms [x-intercept and y-intercept], students will also gain practice taking a word problem and transforming it into an algebraic equation. From this, they will learn how to graph the equation and gather information from it to assist in solving the word problem.

A lesson that helped learners in "transforming" a word problem into an algebraic equation would help scaffold academic language while enriching their content understanding. However, the lesson plan did not support this objective at all. In the procedure of the lesson plan, Betsy described how she, at the board, would highlight the relevant parts of the word problem and write them into an equation. There was no focus on difficult vocabulary or on identifying syntactic structures that signal which parts of a word problem held the important information.

This analysis will now turn to Betsy's full practicum interview and observation, after she had been leading the class for 7 weeks, to see if, in her fourth and final semester, there was any change.

Full Practicum Observation. Betsy's observation occurred in April of 2012 during her full practicum in a suburban high school that serves 1,300 students in grades 9-12. According to MCAS results, while the school's aggregate student scores were making AYP in Language Arts and Math in 2011, the scores of low income Latinos were not, placing the school at an Assistance Level 3. The school is an older building, and the population was ethnically diverse. Its student population in AY 2012 was 49% White, 30% Latino, 11% African American, and 6% Asian.

The 10th grade Algebra II class observed began at 8:30 am. There were 15 students, 2 of whom were native Spanish speakers who had been recently mainstreamed. The classroom was

carpeted and spacious, with students arranged in small groups. There was an LCD projector, coupled to a document camera and a tablet for the teacher's use. There was also a set of clickers that students seemed familiar with. Each student had a calculator. The following Content objectives were on the board:

SWBAT ID direct variation

SWBAT Solve an equation using direct variation

Betsy began class by collecting homework and going over the answers. As she began the lesson, she put the relevant algebraic formula on the board. She gave a real-world example of a problem needing to be solved using the cost of songs on iTunes. "If one song cost $2.00, 2 songs cost $4.00, and 3 songs cost $6.00, how many songs will a $30.00 gift card buy?" She asked students to create and solve an equation that would address the problem. She then asked questions to students about each step they used to create the formula and solve the problem. She ended this example by naming the concept: "today we are going to give this concept a new name: direct variation." She described the concept and gave more examples. Eventually, she asked the students to think of a relevant example. The next example was a selected response item, and as students solved it independently, she asked them to use the clickers to send their answers to the tablet, which presented the answers in a bar chart. Twelve students chose correctly, and Betsy examined the distractor answers that had been chosen to see what error would have led students to choose them. At the end of class, students were given a worksheet to prepare for tomorrow's class.

Betsy's lesson incorporated many elements of the SIOP model. She clearly stated content objectives. She linked the content to students' background knowledge, e.g., the iTunes example and the students' own examples. She translated the equations and rephrased the discourse of

math, adapting it for students. Her speech was clear, precise, and allowed sufficient wait time. Betsy appeared very confident in front of the class. She was well prepared and had many relevant examples. She never fumbled for a word or an explanation. She rephrased quite often, and her use of technology was seamless. The class was quiet. They listened attentively, raised their hands if they had a question, and once they finished a problem they waited quietly for their classmates. Her masterful use of technology helped her to present the content and assess student understanding. The clickers, projector, and calculators aided the instruction, but they did not drive instruction or distract from it. The lesson alternated between lecture and hands-on small group or individual work that kept the class moving. Yet, because academic tasks were clearly explained, these transitions did not confuse or interrupt the lesson.

Betsy's journals talked about using writing in math class, and there were moments in class where her instruction helped support language development. For example, she asked for the meaning of the word *direct* and compared its common usage with its algebraic one. She pointed out that *variation* and *variable* share the same root word, which she defined. She rephrased often, first using the correct math terminology and then restating it in more common terms.

> What was our equation? What was our slope? Y varies directly with X. That's a fancy way of saying that they are both changing in some way. So if X goes up, Y goes up too. They either both go up or both go down. As x increases, y increases.

This translation from math to English helped shelter the content and scaffold learners into the academic discourse of math (Zwiers, 2008). However, students did no writing; their role was to listen, compute and report out the answers, often via clicker.

Despite her masterful performance, this same lesson would have been very difficult for a class with ELs. There were Tier Two words that would have needed definition, e.g., *table, the*

known, origin, and *eliminated.* However, the greatest challenges would have been the prepositions and Betsy's rate of speech. Her ability to effortlessly translate symbolic equations into English sentences would have left EL students feeling lost:

> Given that Y varies with X, and Y equals 28 when x equals 7, find X when Y equals 52. This is going to be a fraction, so just put it into your calculator as a decimal.

This sample had many Tier Three words, unusual phrasing, and prepositional phrases that are used to explain symbols, and most were not explained. Consider the linguistic complexity of another explanation of a problem regarding direct variation and distance:

> If we think of it in terms of constants of proportionality and direct variation, we can say that the distance is equal to some constant, times the time… times the time that it travels. The distance varies directly with the amount of time it travels for this particular object. If an asteroid travels 6000 miles in 6 hours, what is the constant of variation?

This statement contained complex vocabulary, confusing phrases like "times the time," and two conditional sentences with many dependent clauses. This was the explanation of the question- the clarification that was supposed to make it comprehensible and help students to answer it.

Zoe- History major. While Zoe attended all three ALP trainings, she was always part of a larger group, and it was hard for the trainer to get direct formative feedback on her uptake of the skills being taught during the session. There were no infusions of academic language into her methods courses.

Prepracticum Materials. After Zoe's initial prepracticum, she saw very little linguistic diversity. Her second prepracticum was in a large, public high school that requires an entry exam; there are no struggling readers at this school. Her third prepracticum was in a small, private, Catholic high school that was predominantly White. Given the linguistic heterogeneity of these settings, it is no surprise that Zoe had difficulty recognizing the linguistic demand of her content area. As Table 16 shows, her journals did little to attend to the challenges that ELs face in the classroom. Any attention that was given to academic language was restricted largely to Tier Three vocabulary. The language supports that she suggested were largely just good teaching practices uninformed by knowledge of second language acquisition, (e.g., use of subtitles when watching a video, group work, or writing directions on the board).

Table 16

Zoe's Combined Prepracticum Journal Scores

Journal Category	Zoe's score	Max score
Attend to linguistic demand	1.66	5
Recognizes Language Supports	1	5
Suggests Language Supports	2	5

Her lesson plans were not generally able to incorporate the content of the ALP trainings. Language objectives for her first two semesters, when present at all, were merely a restatement of the content objectives. In a few instances, she was able to incorporate a focus on language, but only on Tier Three vocabulary. While she scored highly in the second category*, making LOs observable,* this simply reflects the fact that she could write objectives, not that she was able to attend to language. It appears that many of her lesson plans were most often for students who were probably native speakers or FLEP students with higher levels of English proficiency. Here

is a sample from her journal describing a lesson she planned for her second prepracticum (set in the exam school):

> Today's US History 1 warm-up provides an ideal way to teach all students, but especially English Language Learners, the art of breaking down confusing sentences to aid comprehension. The activity scrambled phrases from the Preamble to the US Constitution, which is essentially one long sentence, and asked students to organize the pieces in the correct order. After giving students the opportunity to attempt to unscramble the Preamble themselves, I reviewed the activity orally with students. Later, I realized that our review could have included a discussion of the meaning of each phrase.

To be successful in this activity, students needed to have extensive familiarity with the *Preamble* as there were no other clues as to how the phrases should be ordered. Additionally, this is not a language learning exercise in terms of learning about structures or words, this is simply a recall of the Preamble exercise. The opportunity to interact with classmates might have been beneficial for group recall, but otherwise, it is not entirely clear how this would have benefitted ELs, especially if they were still at lower levels of English proficiency.

Full Practicum Observation. Zoe's history full practicum was at an urban high school that served approximately 1,300 students. It was one of two high schools in this small city, being the counterpart to the school where River was teaching. It was a new building, completed in 2010 and well equipped. In AY 2012, the school was 53% White, 24% Asian, 10% African American, and 7% Hispanic. In 2012, the school was in Restructuring Year 2, and making progress on all target groups. By April 2012, when this observation took place, the school was at Assistance Level 2, with its Asian students yet to make AYP.

Zoe was teaching a standard 9th grade History class that began at 9:30 am. The class had 25 students on the roster, but only 19 were present on this day. Eight of the students present are White; many of the students of color are non-native English speakers who had been reclassified into the mainstream. In addition to English, students in the class speak Spanish, Mandarin, Japanese, and Albanian. Today's lesson focused on Thomas Jefferson's presidency. The classroom was light and spacious, with an LCD projector, a large TV, and plenty of whiteboard space. The students were seated in rows. While there were no objectives on the board, there were three questions that introduce the topic:

What effect did the frontier have on Jefferson's foreign policy?

What is going on in France & Britain?

What's it got to do with us?

Zoe began by collecting homework, and reminded students about an extra credit local history project in which students were to take a picture of a historically significant building built before 1850. Then she began to ask display questions that would introduce today's topic:

What is the frontier?

Remind me, what is foreign policy?

What is domestic policy?

Decisions that affect interactions with who?

Several students answered, but most were not engaged. She put the following sentence stem on the board: "It affects it by...." After giving them a minute to think, she asked for volunteers. Two of the students who had already participated volunteered answers again. Zoe asks: "Who is running for president in 1800?" The students guessed correctly: Jefferson and Adams. She

showed the students a YouTube video on negative campaigning in an attempt to relate this 4th presidential election to the current 57th election.

Zoe abruptly transitioned to a reading on the Haitian Revolution. The article briefly described the causes for the Revolution in Haiti. She then passed out a worksheet with six questions that asked students to write short essay responses to key questions linking the Haitian Revolution to foreign affair in the U.S. and France.

1) Why was the Haitian Revolution successful?
2) What was happening in the U.S. at the time of the Haitian Revolution?
3) What was happening in France?
4) What does the success of the Haitian Revolution reveal about France?
5) How did the Haitian Revolution impact American History? (Clue: what impact did it have on events during Jefferson's presidency?)
6) Why do we need to students outside events like the Haitian Revolution in the American history class?

She asked students to read it on their own. Afterward, she used the worksheet to review the reading. She began the worksheet at question #1, jumps to 3 before going back to address #2. There was an instance where she models syntactic awareness: "What is a word for revolutionizing? Not rebellion… revolting, good." There were several Tier Two words that could have been supported: lucrative was a key word, but it was not addressed; nominalization might have helped struggling readers to connect the term *French armies* with the synonyms *troops* and *forces* that were used later in the article. Zoe elicited responses from the students and rephrased them, but no model responses were offered, and nothing was written on the board. She ended this

segment by asking students to write "in your own words, a couple of paragraphs about Haiti's Revolution."

At 10:15 she shifted gears to discuss "belligerent acts" by the British navy that led to the 1807 Embargo Act. She defined the terms embargo and impressment (but not belligerent) before handing out a sheet that had two editorial cartoons from that period. She spent the next 10 minutes walking them through an interpretation of each cartoon. Students seemed disengaged. This part of the lesson was entirely oral. She ended the lesson by giving students 15 minutes to work on a review sheet, asking the following questions:

> What do these cartoons tell you about U.S. foreign relations at the time?
>
> Do you think the artist liked or disliked the embargo act?
>
> Did the Embargo Act help prevent a war?

After 15 minutes, she collected the sheets and assigned reading homework before dismissing the class.

Analysis of this lesson in light of the recommended elements of the SIOP model will help illustrate its strengths and weaknesses. Zoe used a variety of materials, including the YouTube video and editorial cartoons, in an attempt to make the content more interesting. However, the class was predominantly a lecture, with little chance for students to interact. The activities were not very hands-on, nor were they multimodal: students were asked to read and then to write. The questions in the lecture were information display questions, with only one right answer. They were not designed to elicit genuine interaction, and often left students confused. Furthermore, this lesson did not truly address the opening questions, and there was no big idea or essential understanding that structures the lesson.

Overall, this lesson suffered from a lack of clear objectives. If Zoe had tried to state content objectives, she would have realized that the lesson was covering too much: Westward Expansion, the problematic U.S. Presidential Election of 1807, the Napoleonic Wars, the Louisiana Purchase, and the Embargo Act of 1807. If she had had a clear focus on the content, she could have next thought about exactly what students would need to do in class, what language they would have needed, and which aspects of this language would need support. This would have led to language objectives that would have required her to stipulate what students were expected to do. Having to state language objectives forces a teacher to think about the students' classroom experience and to design instruction and assessment that account for any gap between the language needed to be part of the lesson, and the students' current experiences.

Miranda- English major. Miranda was an excellent student who participated well in ALP trainings. As an English major who was very fluent in French as a second language, she was able to grasp the linguistic structures in the Beginning Framework for Teaching Academic Language, including modals and passive voice.

Prepracticum Materials. Miranda's first prepracticum was in the same urban high school as the other TCs. Her second was in a suburban high school that served over 1,000 students, 63% of whom were White. Her third practicum was in a larger suburban high school, with a student population of approximately 1,500 students, 72% of whom were White. Miranda's journal excerpts focused mostly on supporting content area vocabulary. Her scores reflect some attention to teaching Tier Two words, some morphology, and words that cross disciplines. Her prepracticum journal scores are presented below in Table 17. In her second and third prepractica, she noted many instances where the classroom teacher was focusing on these aspects, but most of these supports were designed at unpacking difficult concepts, like story-truth versus

happening-truth, Elizabethan language, or imagery, but not towards the specific linguistic features of the texts being used.

Table 17

Miranda's Combined Prepracticum Journal Scores

Journal Category	Miranda's score	Max score
Attend to linguistic demand	2	5
Recognizes Language Supports	2.33	5
Suggests Language Supports	1	5

Miranda's prepracticum lesson plans focused on the content objective, and did not generally address specific elements of academic language, as her scores in Table 18 indicate.

Table 18

Miranda's Combined Prepracticum Lesson Plan Scores

Lesson plan rubric category	Miranda's Score	Max Score
Language objectives that describe what language the students will learn	1.22	4
Language Objective is observable, demonstrable	1.75	3
Instructional Supports for language acquisition	1	3
Assessment for language objectives	.44	3

Her language objectives rarely addressed academic language, and when they did, this attention was minimal and tied to traditional ELA instruction:

> SWBAT define the concepts of happening-truth and story-truth.
>
> SWBAT identify types of stanzas used in sonnets through the study of word etymology [e.g., quatrain, couplet, tercet]

Supports that were planned did not reflect the kind of linguistic support necessary to allow ELs to participate meaningfully in the class. She wrote the following description for the procedures of a lesson asking students to recount the chronological order of events in a story:

> I will go around the class and arrange students into groups of four. … then I will distribute a packet of events to each group…. I will ask them to put them into order on their desks, and that they should reference their books in order to do so. (You may now begin.) Once each group is done, I will go around the class and have students share the order of events. I will split students into pairs (within their groups), and have them use a sheet of blank paper to list all of the people that one could blame for Kiowa's death.

In the first activity, there were crucial academic terms that would have helped students structure their recount of the order of events. A word bank of sequential transition words would have allowed students to approximate the academic discourse as they recounted their work. During the second activity, transition words of causation would have helped them transform this list into the "brief essay" she assigned as homework. In another lesson, she described the following activity:

> Ask a student to reread the Millay sonnet. As a group, discuss presence of poetic devices: personification, metaphor, simile, imagery, alliteration, and assonance. Students will be asked for definitions to accompany the example.

Miranda overlooks the challenge of writing concise, accurate definitions, unless these definitions have been learned by rote *a priori*. A template, or a model, would have helped students create a definition they would be more comfortable sharing in front of peers.

As Table 18 indicates, the assessments Miranda designed during her prepractica tended to rely heavily on written literacy that was beyond the scope of instruction:

1. Write at least one paragraph explaining why they believe *Field Trip* is either story-truth or happening-truth.
2. Paragraph on sonnet to be handed in as homework

The lessons did not model what these responses should look like, and relied on longer writing that was not supported by the lesson.

Full Practicum Observation. This observation occurred in April of 2012 in a large, suburban high school serving 1,900 students in grades 9-12. The school is 20 years old, but is modern and well equipped. Despite being an ethnically and linguistically diverse school, at the time of this observation it was an Assistance Level 2 school. The 9th grade class observed was a "Standard" level class, consisting of a mix of recently mainstreamed students, along with underperforming native English-speaking students. There were nine students in class on this day, and 6 were formerly ELs. Four of these students spoke Portuguese as their first language, and two were native Spanish speakers. The class began at 7:30 am, and the subject was Shakespeare's *Romeo and Juliet*, Act One.

The classroom was colorful, decorated with posters promoting literacy. There were also teacher-made posters: one was a word wall, and another was a "banned word list," on which were written the following words: "fun, good, thing, nice, bad, stuff, a lit, kind of, very." The TC, Miranda, was friendly and engaging. By this time in the semester, she had been leading the class for several weeks, and she appeared confident and comfortable, upbeat with a good sense of humor. However, she also had an authoritative tone. At this early hour, and with such a difficult task at hand for students at this reading level, Miranda had her work cut out for her.

At the beginning of class, the whiteboard was blank, with no vocabulary, language, or content objectives on the board. She began with managing paperwork: collecting homework, having students get their journals from the box, handing back assignments, and overseeing students as they put these materials into their binders. The class had been assigned to read *Romeo and Juliet, Act One: Prologue,* and *Scene 1* for homework. Miranda began by reading the *Prologue* aloud, reviewing vocabulary as it arose. Next, she assigned roles to students and had them read sections of the play aloud in their seats, again reviewing vocabulary as it arose. Finally, she had the students get up and act out the quarrel between the Montagues and Capulets.

Miranda employed several methods for sheltering the content. Her tone was slow and clear, and she was very careful in explaining directions clearly. She repeated key info, rephrasing it as she went along. She used questions to check for student comprehension. She attempted to give examples that would make the plight of these characters relevant to the students' own lives. Whenever she dealt with a new word, she wrote it on the board, along with a concise definition. She made sure that students knew about and used the glossary notes in the margin.

Miranda scaffolded this difficult text for the students in a manner that resembles the Gradual Release of Responsibility model (Pearson & Gallagher, 1983), where the responsibility for completing a task moves from the knowledgeable teacher to the student. In this class, Miranda first read the text aloud, lectured about rhyme scheme, and stopped to support vocabulary as needed, thus modeling the performance of reading the play aloud. Next, she guided students as they read in turn, again supporting vocabulary as needed. Finally, the students had to stand up and enact the play in face-to-face collaborative learning. Ultimately, they would take a quiz or write an essay to assess their understanding of the text. This approach begins to

cross from sheltering technique into scaffolding, because it not only helps learners comprehend the text, it also begins to teach the discourse of Elizabethan English.

She also used techniques that could help promote academic language fluency. The "Banned Word List" helped draw attention to the difference between informal, spoken English and the academic English used in discussing literature. She further supported this by helping to rephrase students' responses into a more academic tone, as seen in the following interaction about the *Prologue*:

M: So, what does the *Prologue* tell us?

S: It tells us what the story is about. It introduces the story.

M: right, it introduces the major idea of the story, which is love.

This rephrasing was done in a way that felt like part of a natural dialogue, not as a correction. Through rephrasing, or recasting, "students can hear their own words being used in more academic frames," a contrastive analysis that validates students' responses while at the same time explicitly modeling how to clarify, elaborate, and relate it to the subject (Zwiers, 2008, p. 60). Miranda also focused on word-level features when, in a discussion of rhyme scheme, she looked at the Spanish and Portuguese word for the number four, in order to teach quatrain.

Overall, the lesson showed many elements of the SIOP, with solid content teaching skills that helped shelter the content. She adapted the text for the class and the grade level. There were a variety of activities that led to a gradual release of responsibility. Her interaction helped students to be mostly engaged, despite the early hour, a few rowdy boys, and the difficult text. She had good wait time, and students were able to ask questions. The activities got students to read, listen, write notes, and to speak the words aloud multiple times.

However, there were instances where attention to academic language could have been infused. The only vocabulary words defined were content-obligatory ones: *couplet, stanza, quatrain, chorus,* etc. As often happened with her prepractica journals, other words were overlooked that might have benefitted this class, including *feud, fated, absurd*, and *poetic license.* Stated language objectives would have allowed a focus on the language challenges of the instruction and could have led to scaffolding that is more consistent.

Alice- History major. Alice did not participate in any additional infusions, nor did she take extra coursework on teaching bilingual learners. However, all three of her field placements were in linguistically diverse schools, and she had the opportunity to work with an excellent cooperating teacher (CT) in her third placement.

Prepracticum Materials. Alice completed her first prepracticum in the same large, urban high school as the others in this study. Her second prepracticum was in a large, urban, public high school in one of Boston's smaller cities. During the time that she was there, the school was serving approximately 1,400 students, 49% of whom were White, and the school was rated very highly based on MCAS scores. Her third prepracticum was in the same large and linguistically diverse suburban high school as her full practicum, and, according to her journal, working with a CT who modeled sheltered instruction.

This diversity of field placement served her well, as evidenced by her ability to attend to the linguistic demand, and to suggest and reflect on the utility of supports, as indicated by the results presented in Table 19. Her journals also reported instances of sheltered instruction that she witnessed in class. In Alice's journal entries from her first semester, she discussed various aspects of academic language teaching in the secondary classroom like morphology, content area vocabulary, sentence structures (e.g., relationship between questions and statements and

expressing ideas in complete sentences), and verb tenses. She also addressed various ways to reduce the linguistic burden in the classroom and make content accessible to ELs by using visuals to support content learning and comprehension and using subtitles when viewing movies. In addition to these suggestions and recognitions of methods to support and promote learning for ELLs, she also discussed the pros and cons of alternative assessments and the reality of the kinds of standardized assessments ELLs come up against in their academic career.

Table 19

Alice's Combined Prepracticum Journal Scores

Journal Category	Alice's score	Max score
Attend to linguistic demand	4	5
Recognizes Language Supports	3.5	5
Suggests Language Supports	3	5

Table 20 shows Alice's prepracticum lesson plans scores, which were much higher than the average post scores that were presented in Table 9, in Chapter Four.

Table 20

Alice's Combined Prepracticum Lesson Plan Scores

Lesson plan rubric category	Alice's Score	Max Score
Language objectives that describe what language the students will learn	2.66	4
Language Objective is observable, demonstrable	2.25	3
Instructional Supports for language acquisition	1.66	3
Assessment for language objectives	0.66	3

The language objectives that scored 3 or higher all had components that went above and beyond regular vocabulary learning. For instance in her 3rd lesson plan for her second prepracticum placement, she wrote the following language objective:

> Students will be able to differentiate between the past and present tense in their writing about history vs. their writing in which students become historical characters.

Another example of a medium language objective for Alice is:

> Students will be able to break down the word "geography" into its component pieces, and apply this skill to defining the words "physiographic feature" and "hydro-electric power."
>
> Students will be able to define the words plain, plateau, and basin, and use them in their writing about Africa's diversity.

Though these language objectives focused on Tier Three vocabulary, the way she involved word morphology in the learning of those vocabulary moved her effort up from a score of one to a score of three over time. Alice also appeared to have improved in writing language objectives, more language support, and better assessments in her lesson plans. Her work appeared strongest at the beginning of her third prepracticum, with her first lesson plan having the highest scores all around.

In this lesson plan, she wrote the following language objective:

> Students will be able to define and use the following terms in their oral and written discussions of the ratification of the Constitution: *context, ratification, tyranny (review word), separation of powers; the root part- as in partisan, partial, partiality and the synonym faction*.

She actually taught the words listed above at the beginning of her lesson by presenting the words on word cards and hanging them on the board with a picture next to them to help support the introduced definition. She also asked students to be sure to use these words during the course of

the lesson. Because of the review element and a discussion of root parts and synonyms, this language objective scored into the medium range. This language objective also guided some of the instructional sequence of the lesson as she explicitly taught the words and expected students to use them.

While there are some positive features of Alice's lesson plans, like occasional group work and some focus on vocabulary, there is still much room for improvement as she continues to teach. She could still benefit from learning more about second language acquisition, as much of what she teaches and discusses in terms of language support is for content acquisition.

Full Practicum Observation. Alice was a History major teaching in the same large, suburban, ethnically diverse high school as Miranda. The observation occurred in April of 2012, as she was teaching 25 standard-level 11th grade students about Manifest Destiny. Six of these 25 students were recently mainstreamed. Four were native Portuguese speakers, and two native Spanish speakers. The room was large with ample natural light and each student sits as his or her own desk. Although it was a large room, it was crowded with this many students. There was an impressive display of bumper stickers in the room, which appeared to include every candidate in a US presidential election in the last 50 years. She appeared comfortable with the class, and seemed to interact with them in a way that indicated that they were all on the same side. As students were coming in, she talked about the weekend, a game she went to, and students talked about their own experiences.

At 11:35, she began the lesson by writing the term Manifest Destiny on the board: the word *Manifest* is in blue, and the word *Destiny* is green. She asked the class what these words might mean. Someone mentioned Destiny's Child, and Alice praised this and led them on to more examples. She gave a worksheet that provided the formal definition for each word:

> Manifest: Obvious or evident
>
> Destiny: the predetermined, usually inevitable, course of event
>
> Manifest destiny: the 19th century belief American that the US was destined to expand across the continent

She walked them through these definitions, and related each to the recent topics of discussion. She used the LCD projector to show a YouTube video on Manifest Destiny. Next, the class moved into a group activity, where they had to visually depict the idea of Manifest destiny: "draw something to help you picture, remember the idea of Manifest Destiny. No arrows or maps please." Each student worked independently for three minutes, then assembled as a group to produce a collage. Afterwards, students will present their work, and provide "a commentary- explain how it shows Manifest Destiny." As students presented their work, each member had to explain some element of the final product. "Make sure everyone takes part," she told them, "or we will lose points if one person is doing all the work." To ensure this, students were each given their roles within the group: *leader, timer, note-taker,* and *resource person.*

Alice incorporated many elements of SIOP and of the ALP in her instruction. She used morphology to interpret Tier Two words in the definition of *manifest:*

> Predetermined- what do you think that means? Let's look at the pieces… remember when we looked at *reform*? We broke in into pieces: *re-* to do again, and *form,* to shape something. How about this one? How can we break this into pieces?

She provided synonyms: *destined, fortuned, predetermined,* and looked at the word family: *destiny, destined, destination,* and *predestined*. She rephrased other Tier Two words that arose, encouraging students to write them down in their notebooks. She pointed out that "these words

will help you pass the SAT, and also in life because people use words for life." Alice asked them to use the new word in a sentence, "because every class in an English class." Students followed her lead and attempted to use a more formal register in their presentations. The following conversation was overheard between two students in a group, as they prepared their commentary:

> The scale symbolizes… I don't want to keep saying symbolize. Check the dictionary for another word.
>
> Can we write "you can see?" Right, you can't say you… how about, "One can see?"

Alice's lecture also drew attention to some of the sentence-level features of the academic discourse of History. When a student said, "It is Brian's destiny to finish his water because he is thirsty," Alice pointed out that "a good word in there is *because*, because it helps you make good sentences." She further scaffolded sentence-level features of academic language by providing sentence stems on the worksheet that defined Manifest Destiny: "from the Atlantic to the _____." As students worked in group, she reminded them to consult a poster on the wall that contains a list of academic phrases to promote interactive and supportive group work. Even after Alice walked away, students could be heard using the following phrases:

> We can have…
>
> We could cut it…
>
> Should we…
>
> Looks good to everyone?

As students presented their work, she helped them by rephrasing utterances into more academic register.

Regarding SIOP, the concept of Alice's lesson was level-appropriate, and there was some use of supplemental material (e.g., the video). She linked the language strategies from previous lessons (e.g., morphology, and the poster of academic conversation terms) which relates to previous learning and provides consistency. She very clearly emphasized key vocabulary, along with some other Tier Two words, without overwhelming students through sheer volume of vocabulary. Her speech was slow, clear, and loud enough. She provided ample wait time, and used questions to both involve students and assess understanding. Students got a chance to interact with each other and with Alice. Academic tasks were well structured and clearly explained. For example, during in-group work, students had clear explanations of the group's task and their own roles. The group work and collage activities allowed students to listen, speak, and write, and they both led to a deeper understanding of the abstract concept and scaffolded the language.

River- History major. River studied abroad for a semester, speaking and doing academic work in a language that she had studied in school but in which she was not fully conversant. This immersion experience came up several times during the trainings, in her journals, and in her interview. Her field placements were all in very diverse, urban schools. In addition, she had additional exposure to teaching bilingual learners. First, an infusion into her history methods course that focused on the academic language challenges of history. This infusion was carried out under the same grant and by the same team as the ALP part, with a very similar approach. She also took an elective course on teaching bilingual learners. Thus, River meets many of Lucas and Villegas' (2011) strategies for building LRP: previous exposure to bilingualism, modification of existing courses and fieldwork, and additional courses. Thus, the findings below are not surprising.

Prepracticum Materials. As Table 21 shows, River's journals scored quite well in relation to the dependent variable: ability to recognize linguistic demand and to suggest supports. During her first practicum placement, her journals attended to many aspects of the challenges that ELs face in mainstream classes. She draws relevant and far-reaching implications for policy and practice. Her journal discusses the need to adapt curriculum for ELs, saying that "fair is not the same for all students but giving each students what they need." She talks about how the results of mandated assessments are confounded by limited language proficiency, saying that the "definitions of progress- how is doesn't take backgrounds into account." She reflects on how her own high school could have done more for ELs, and discusses how she will design her own classroom, and modify her instructional practices to "support everyone in my class."

Her lower score in the second category, Recognizing Language Supports, is a result of the fact that she was so often suggesting what the cooperating teacher could have done better. For example, during her third field placement in the same diverse school where she eventually did her full practicum, she reflected, "clearly curriculum standards have to be modified to meet the needs of the students." In two of her three prepractica, she recorded little in the way of sheltered instruction observed, and suggested many areas where more support could have been given. Her awareness of linguistic demand was sharp, and even in her prepracticum journals she was proactively thinking about how to support ELs in class.

Table 21

River's Combined Prepracticum Journal Scores

Journal Category	River's score	Max score
Attend to linguistic demand	5	5
Recognizes Language Supports	2	5
Suggests Language Supports	4	5

However, her written lesson plans were not able to incorporate this same awareness, as reflected in her scores in Table 22 below.

Table 22

River's Combined Prepracticum Lesson Plan Scores

Lesson plan rubric category	River's Score	Max Score
Language objectives that describe what language the students will learn	2.67	4
Language Objective is observable, demonstrable	2.11	3
Instructional Supports for language acquisition	1.67	3
Assessment for language objectives	1.17	3

Although River's lesson planning score was not very high, her lesson planning process was commendable. She reflects on it at length in her third practicum journal:

> I planned to [sic] lessons to the ELL class, and three mains considerations went into my planning. First, I considered what I observed in the classroom with what Mr. R told me. We talked a lot about their language abilities, strengths, weaknesses, and the other students who came in to help. Mr. R. recruited a few ELLs who are mainstreamed and in regular classes but still speak Chinese, and they would come in and translate, from what I saw and what we discussed, I would think a lot about that when planning. Secondly, I would try to draw on the

> strategies and methods from my own classes on teaching ELL students, and incorporate the ELPBO[2] in the Reading, Writing, Speaking, and Listening categories, finally, I would consider my own experiences from abroad and the difficulties I faced as well as the positives. I know our experiences are different, but I still think I can draw upon my own abroad classes in order to inform my teaching a little bit…. I think that helped me understand a little bit what it's like to be in their shoes.

This passage shows the importance of her time abroad, and how the experience of being "in their shoes" shapes here awareness. The statement "I know our experiences are different" is intriguing, and when asked about it in her interview, River's answer indicated a well-developed sense of sociolinguistic consciousness:

> Well, it is different because I knew that I was going home soon, but they have to live here. Also, it is different when you speak English. It is not always, like, not always a bad thing to speak English, even when you are in a different country, a country where they don't speak English. I mean, it was different for me to be speaking English in France than it is for my students to be speaking Chinese here. It's more acceptable.

This reflection shows that River understands the way that language situates someone in relation to a culture's distribution of power. River has enough sociolinguistic consciousness (Lucas & Villegas, 2011) to realize that a White, native-English speaker visiting a foreign country has

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[2] The English Language Proficiency Benchmarks and Outcomes was a set of standards that the Massachusetts DESE used to supplement the K-12 Language Arts Curriculum Frameworks until it was replaced by the WIDA standards in 2013. An archived copy is available at http://www.doe.mass.edu/frameworks/benchmark.pdf.

more cultural capital than the teenaged Chinese immigrants struggling to find their place in River's US school.

From a lesson-planning point of view, this passage is illustrative. The ALP trainings discussed a three-step process in designing instruction: target the linguistic demand of the lesson, establish the learners' current level of proficiency vis-à-vis this linguistic feature, and then plan appropriate supports. This passage shows that River is fully considering the second and third aspects, but perhaps not the first one: analyze linguistic demand. This is consistent with her scores on the Lesson Plan rubric.

While she may not have isolated a linguistic feature *a priori,* or at least may not have described it in her lesson planning, she was aware of the challenges of academic language in a foreign language, and therefore more cognizant of the need to shelter the language and support the learner. Perhaps the activity of writing a lesson plan may not be the best measure of teaching skills. It is, after all, a literacy activity, one that requires its own register and conventions. Let us turn to River's full practicum and see if she was more successful in practice.

Full Practicum Observation. River's full practicum was at a large urban high school serving 1500 students, grades 9-12. Students at this ethnically diverse school performed well on their 2011 MCAS, placing it as Assistance Level 1. It is one of two high schools in this small city, paired with the school where Zoe is teaching. The school is 49% White, 42% Asian, 4% African-American, and 3% Hispanic. River's observation occurred in April 2012 at 7:55 am. It was a 9th grade History class for ELLs, meaning that all 12 students present are limited English proficiency. The class included 10 Mandarin speakers, one native speaker of Brazilian Portuguese, and one native speaker of Swahili. There was a range of abilities in this class: one of

the Mandarin-speaking students had been in the US for less than 3 weeks, while another Mandarin speaker and a Portuguese-speaking girl were ready to be mainstreamed.

River began the class by asking students to get out their notebooks, and went around making sure they did. She got them to focus, saying: "this is not a time when we should be talking." She asked questions to activate prior knowledge, i.e., the vocabulary from the last class, which ought to have been in their notes: *triangle, land, loyalty,* and *service.* "Can you find these in your notes from last time?" She asked students to "move your desks up because you are too far away." She used the chalkboard and an LCD projector to review and summarize a double-sided reading used last session to compare European and Japanese feudalism. As students reviewed their notes they turned to collaborate. The Mandarin speakers used their L1, and the Swahili and Portuguese speaker use English. River began to present the slides, giving students enough time to write down the relevant information before moving on to the next slide. She also referred back to previous classes: "remember the colored charts from last week?" After reviewing previous lessons, and introducing the concept using PowerPoint, she asked questions to assess student mastery of the material she just reviewed. When students did not volunteer responses for the first two questions:

> How much power does the Emperor have?
>
> How about the Shogun?

River answered these questions herself. Students were able to answer her subsequent questions.

> Does the *Shogun* own land?
>
> What does the *Diamyo* do?
>
> Does he own land?
>
> Is he part of the military?

She rephrased well: “The Shogun is the commander, the highest, the leader.” River used the chalk-board to visually reinforce her rephrasing: “The samurai is sort of like a soldier.” She wrote the following on the chalkboard: *sort of- like- not quite the same- share characteristics- similar.* She also pointed out Tier Two vocabulary words as they arose: “the Lord is loyal to the King. Remember our word ‘loyal?’ Write this in your notes.” She also paid attention to morphology by building students syntactic awareness by teaching students not just one word, but its associated forms: *similar-same-similarities-both*

River sheltered the content by activating prior knowledge, and by previewing the vocabulary before asking the content questions and introduces the activity.

> Today we are going to compare things, using these words. Let’s compare these two pieces of chalk. Compare means what’s the same and what is different. Let’s look at the word family. Please repeat “word family” [students repeat chorally twice]. Compare is a verb: I am comparing the chalk. Comparison is a noun. I am making a comparison. What comparisons have we made today?

After students gave some examples, River drew the two circles of a Venn diagram on the board, labeling one circle “King” and the other circle “Shogun.” She labeled the overlapping segment “same.” She asked students to look at the items in the PowerPoint list and decide where each statement should go. She gave an example: “Little actual power…. what do we mean by ‘actual?’” She handed out a blank diagram, and told the class that they were going to compare knights and samurai and for the next 10 minutes students work on their own, and that they should fill in the diagram. After this time, she called the class together and reviewed their diagrams together, creating one on the board based on their responses. At 8:50, the class was ending and she asked them to complete the diagram for homework. She told me that in the next class she

would have them unpack these diagrams into complete sentences comparing and contrasting knights and samurai, using "a short list of mortar words, like 'similar,' 'because,' and 'however.'"

River incorporated many elements of sheltered instruction in this lesson. The PowerPoint, handout, and Venn diagrams helped make the content clear and to adapt the content for this class of ELs. The lecture was linked to previous learning and had a variety of activities, including lecture and group work. The group work was well structured and gave students a chance to go beyond the text to speak, listen and write. Interactions with peers allowed students to use L1 to clarify the concepts. River's speech was clear, slow, with ample wait time, and included many instances of paraphrasing to aid understanding. The lesson allowed her to teach vocabulary, including Tier Two words and word families.

Cross-Case Analysis

Cross-Case Analysis is a method that accumulates multiple cases so that they can be compared and contrasted. Khan & VanWynsberghe (2008) tell us that CCA can "accumulate knowledge" and, through comparison and contrast, to "mobilize knowledge from individual case studies" (para. 1) in order to look for patterns, a process that is analogous to the way that human cognition compares new situations with already-familiar cases and concepts. In what way are these TCs alike, and how can we account for the differences that arise from a cross-case comparison? All six participants took part in the ALP; all had three prepracticum semesters; all were observed and interviewed during their full practicum. The CCA used a matrix to present the findings from the six case study participants' prepracticum journals and lesson plans, and their full practicum observations for evidence that addressed the research questions, and to present information on other factors that might account for the variation. The following section will

examine data relative to the research questions. First, it will look at *within-TC* summaries of the data for each participant. Then, it will look across the individual within-TC findings to accumulate data that address the research questions.

Ability to Recognize Linguistic Demand and Shelter Instruction, within TC

Zach (Biology). Only one of Zach's prepracticum field placements was in a linguistically diverse setting. There were no AL infusions into Zach's methods course. Zach's prepracticum journals attended to Tier Two Vocabulary and morphology, but there was little mention of sheltering techniques. While two of Zach's prepracticum lesson plans mentioned morphology, all others focused on content and Tier Three words. These lesson plans reduced the conceptual complexity, but did not shelter the linguistic demand. His full practicum observation also showed little to no attention to targeting, sheltering, and promoting AL.

Betsy (Math). Only one of Betsy's prepracticum field placements was in a linguistically diverse setting. Betsy's math methods course received an infusion aimed at recognizing linguistic demand and designing instruction to address it. Betsy had lived and studied abroad as a child. Betsy's prepracticum journal entries noted vocabulary, word-level, and sentence-level features of AL. She also noted and suggested additional language supports. However, her prepracticum lesson plans were not able to target linguistic demand, and they did not include instructional supports for language. Her full practicum observation also showed little sheltering or scaffolding for AL.

Zoe (History). Only one of Zoe's practicum placements was in a linguistically diverse setting. Zoe's methods course did not receive an infusion of AL. Her prepracticum journals did not attend to linguistic demand, and her prepracticum lesson plans contained little to no

sheltering or scaffolding of AL. Her full practicum observation showed no language objectives, little sheltering, and no scaffolding.

Miranda (English). Only one of Miranda's field placements was in a linguistically diverse classroom. Miranda's methods course did not receive an infusion of AL. Her prepracticum journal focused largely on the demand of Tier Two words, Elizabethan English, and content challenges, and supports noted were primarily addressing only these challenges. Her prepracticum lesson plans did not target AL, and did not include sheltered instruction or linguistic scaffolds. Her full practicum observation showed no language objectives, and several key Tier Two words were unsupported. However, it did reveal some sheltering of content through vocabulary support and comprehensible input; the observation also showed some scaffolding into the academic discourse of ELA.

Alice (History). Alice had linguistically diverse field placements in all three of her prepractica. There were no AL infusions into Alice's methods course. Alice's prepracticum journals noted vocabulary, word-level, and sentence-level features of AL observed in class. They also noted and suggested instructional supports. Her prepracticum lesson plans include sheltering and scaffolding techniques. Her full practicum observation showed good attention to Tier Two and morphology, and good scaffolding of AL.

River (History). River had diverse field placements for all three prepractica. There was an AL infusion into River's history methods course, designed to promote recognition of the language of history. River also took additional coursework in teaching ELs. River has spent time studying abroad. River's prepracticum journal attended to linguistic and cultural challenges ELs face in mainstream classes. Her prepracticum lesson plans were less successful in moving

beyond Tier Two vocabulary. Her full practicum observation showed ample sheltering and scaffolding.

Identified trends across teachers for each Research Question. The following section will serve as the key for **Table 23**, providing a more complete definition for the entries on the table. These definitions are organized around the three research questions.

Table 23 Items that address Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed?

LTD TO T3 VOCAB- Participant attended to the challenges of vocabulary in the lesson, but only the content-obligatory, Tier Three vocabulary (Beck & McKeown, 1985), e.g., *allegory, peninsula*, *quadratic,* and *telomere*.

TIER 2 VOCAB- Participant attended to the challenges of often overlooked, Tier Two vocabulary, like *because, meanwhile*, *synthesize,* or *therefore*.

MORPHOLOGY- Participant attended to ways in which morphology, e.g. affixes and cognates, was, or could have been, a beneficial focus of instruction.

SYNTAX- Participant attended to syntactic structures in the lesson that were, or could have been, a beneficial focus of instruction.

Table 23 Items that address Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development?

NOTED - Participant pointed out instances when cooperating teacher was using techniques that sheltered language and/or scaffolded students into using academic language.

SUGGESTED - Participant suggested additional sheltering techniques and/or additional scaffolds for academic language.

Table 23 Items that address Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development?

GOOD LANG OBJS- Participant wrote language objectives that describe the academic language that will be the focus of the lesson, including challenging vocabulary (beyond Tier Three words), word-level and sentence-level features

SHELTER CONTENT- Participant wrote lesson plan or teaches lesson that contain techniques for sheltering content language, making it easier for students.

SCAFFOLD AL- Participant wrote lesson plan or teaches lesson that teaches the vocabulary, word-level and/or sentence levels language objectives, and appropriate and well developed opportunities for language development, beyond content obligatory language

Contextual Variables

Infused Methods Course- Infusion of academic language into methods course

Studied Abroad- Participant spent at least one semester living abroad and doing academic work in a foreign language.

Teacher modeled SEI- Journal or interview reports that the mentor classroom teacher provided good modeling of sheltered instruction.

# of Ling Diverse Preprac- Number of prepracticum semesters in which Participant's field placement was in a linguistically diverse setting.

Table 23

Matrix identifying trends across teachers.

	Prepracticum Journal	Prepracticum Lesson Plans	Full Practicum Observation	Studied abroad?	Infused methods course?	teacher modelled SEI	# of ling diverse preprac
Zach	TIER 2 VOCAB MORPHOLOGY SUGGESTED	LTD TO T3 VOCAB MORPHOLOGY	None	No	No	Little	1
Betsy	TIER 2 VOCAB MORPHOLOGY SYNTAX NOTED SUGGESTED	LTD TO T3 VOCAB	TIER 2 VOCAB	Yes	Yes	None	1
Zoe	LTD TO T3 VOCAB	LTD TO T3 VOCAB	LTD TO T3 VOCAB SHELTER CONTENT	No	No	None	1
Miranda	TIER 2 VOCAB MORPHOLOGY	None	SHELTER CONTENT SCAFFOLD AL	No	No	Little	1
Alice	TIER 2 VOCAB MORPHOLOGY SYNTAX NOTED SUGGESTED	TIER 2 VOCAB MORPHOLOGY SYNTAX SHELTER CONTENT SCAFFOLD AL	TIER 2 VOCAB MORPHOLOGY SYNTAX SHELTER CONTENT SCAFFOLD AL	No	No	Yes	3
River	TIER 2 VOCAB MORPHOLOGY SYNTAX NOTED SUGGESTED	TIER 2 VOCAB SHELTER CONTENT	TIER 2 VOCAB MORPHOLOGY SYNTAX SHELTER CONTENT SCAFFOLD AL	Yes	Yes	Yes	3

The findings from the Cross-Case analysis in Table 23 indicate that in regards to Research Question 1, attending to the linguistic demands of the content area, the prepracticum journals of five out of six case studies participants were able to attend to at least Tier 2 vocabulary and morphology in the classes they observed during their prepractica. Betsy, Zoe and River were able to go further and attend to syntactical challenges. Regarding Research Question 2, recording instances of mentor teacher scaffolding instruction, in prepracticum journals, four out of six either noted instruction that supported ELs, or they suggested it. Research Question 3 asked how well TCs planned instruction designed to shelter content and promote academic language, and this proved challenging. In prepracticum lesson plans, Zach was able to attend to linguistic demand, and River sheltered instruction for ELs. However, only Alice had both targeted language and scaffolded instruction. CCA of the full practicum observation shows that Alice and River were the most able to target language, shelter content, and promote academic language.

Analysis of the contextual variables indicates that the TCs who had been in a methods course (Betsy and River) did well in attending to linguistic demand. It also shows that Alice and River, the TCs who were in a linguistically diverse setting, and who had a mentor teaching who modeled scaffolded instruction, were the most successful at delivering such instruction during their full practica.

Chapter Six: Combined Findings, Limitations, Implications and Recommendations

This chapter will present the combined findings from Chapters Four and Five. It will also consider the limitations of this study as well as implications and future research possibilities. The first section will discuss implications of the data presented in Chapter Four, which conducted statistical analysis on data submitted by 31 teacher candidates over the course of their three prepracticum semesters. It will then draw on these implications as it collectively considers the data for each of the six case studies presented in Chapter Five. These data will be assembled to provide a profile, a more complete portrayal of the experience of each of the teacher candidates who participated in this case study. The second section will discuss the limitations of this study, the third section will discuss implications, and the final chapter will discuss recommendations for educational policy and future research.

Combined Findings

Chapter Four reported results on the quantitative analysis of Phase One, and Chapter Five reported results from the qualitative analysis of Phase Two. Data in each section revealed important information regarding TCs developing abilities to support ELs in academic language, and an examination of the combined data allows triangulation of the findings. This chapter will draw on the literature review of Chapter Two and the findings from Chapters Four and Five, in order to better address the three research questions.

- Research Question 1: How did secondary teacher candidates describe linguistic demand in the classes they observed?
- Research Question 2: How did teacher candidates record instances of mentor teachers' instruction that was designed to aid in content acquisition and promote academic language development?

- Research Question 3: How well did secondary teacher candidates plan or deliver instruction designed to aid in content acquisition and promote academic language development?

The first two questions are best addressed by the qualitative data in Chapter Four, and Table 24 presents a summary of *J Rubric* and *LP Rubric* scores for all Landers College TCs who were part of this study. The following section will consider evidence from this table and from the qualitative analysis, to address each research question in turn.

Table 24

Summary of TC J Rubric and LP Rubric Scores. Mean score for all TCs, all prepractica. n = 31

Rubric Category	Max score	Mean score	S
J Rubric, Category 1: Attend to Linguistic Demand	5	3.7	1.31
J Rubric, Category 2: Recognizes Supports Offered for Language Acquisition for ELs	5	2.91	1.66
J Rubric, Category 3: Suggests Additional Supports for Language Acquisition for ELs	5	2.67	1.9
LP Rubric, Category 1: Language Objective	4	1.13	0.93
LP Rubric, Category 2: Measurable Language Objective	3	1.27	1.14
LP Rubric, Category 3: Instructional Supports Promote Academic Language Acquisition	3	0.51	0.79
LP Rubric, Category 4: Quality of Assessment of the Language Objectives	3	0.46	0.66

Research Question 1. The first research question, which asked how secondary teacher candidates described linguistic demand observed in class, is answered quantitatively by looking at J. Rubric, Category 1, Attend to Linguistic Demand. As Table 24 shows, scores for this category were at the high end of the medium range (see Appendix C for full rubric). These teacher candidates' journals showed substantial, if not effusive, attention to the linguistic challenges that ELs face in mainstream classrooms. However, the average score of 3.7 indicates that the majority of participants in this study only focused on Tier Three words in their journals (the criterion for a *J Rubric* score of three is "Attention only to Tier Three vocab; Little attention to AL demands beyond the content objectives." However, since the score is higher than three, it also indicates that many journals moved beyond this, to consider other levels of vocabulary and other linguistic demands.

Data from the qualitative journal analysis demonstrate a similar attention to word-level features, including morphology. Students in different disciplines also provided evidence of attention to vocabulary beyond Tier Three words. There was little attention to sentence-level structures, however, with very limited instances across all the journals included. The two instances of attention so sentence-level features were apparent in Betsy's and River's journals, the two case study participants who received infusions of academic language into their content area classes.

There were also instances where participants noted sociocultural and sociolinguistic challenges that ELs face in the classroom, including social pressures and the need to shelter the overwhelming stream of L2 input during lectures, discussions, and films.

Research Question 2. The second research question asked how teacher candidates recorded observed instances of instruction that were designed to aid in content acquisition and promote academic language development. Evidence to answer this question is drawn from *J Rubric*, *Category 2- Recognizes supports offered for language acquisition for ELLs*. Table 24 shows that participants scored 2.91, in the Medium range. The descriptors for this category are presented in

Table **25**, and show that during prepracticum observations participants described supports they saw their cooperating teacher use.

Table 25

Selected Descriptors from J Rubric, Category 2- Recognizes supports for lang. acq. for ELLs

J Rubric, Category 2, Score 0	No supports identified
J Rubric, Category 2, Score 1	Attends to supports that are not targeted towards academic language acquisition for ELLs ("helped with spelling, helped organize paragraphs")
J Rubric, Category 2, Score 2	One or two support identified, not analyzed ("computers would help")
J Rubric, Category 2, Score 3	Notices several supports, but they are not analyzed
J Rubric, Category 2, Score 4	Few supports identified, but they are analyzed
J Rubric, Category 2, Score 5	Recognizes multiple supports, multiple modes of presentation and analyzes their use and success in promoting academic language development

However, this score is contingent upon several factors: first, TCs scored higher in a linguistically diverse class, one that lends itself to sheltered instruction; second, TCs scored higher when the mentoring teacher employed effective sheltering and scaffolding techniques; and most importantly, the TC must be able to recognize and describe them. Thus, while the overall score in this category indicates that TCs are not reflecting upon the linguistic supports that they are seeing, this score is artificially low. The first factor, diversity of field placement, can be controlled. Upon comparison, TCs journals in a linguistically diverse field placement were far more likely to score higher, as shown by the mean of 3.29, much higher than the mean of 1.86 seen in less diverse field placements. At this level, TCs are "noticing several supports."

Since this score is still impacted by the quality of the TC, it may not be an accurate representation of TC ability to recognize linguistic scaffolding that they observed in the class. Qualitative analysis provides evidence of the quality of participants' entries, vis-à-vis reflection on linguistic supports observed in class. Qualitative analysis of the entire set of journals uncovered journals entries that described sheltered instruction and scaffolds for academic language. Four of the case study students talk about the importance of learning about students' background knowledge, and building on prior knowledge, and two discuss the fact that all teachers are language teachers.

Teacher candidates who observed a master teacher were able to report more instances of sheltered and scaffolded instruction, while TCs with less-able teachers were not. A corollary of this is that TCs observing a master teacher were less likely to make suggestions about how to better shelter content and scaffold instruction. A classroom teacher who is effectively sheltering content and scaffolding academic language leaves little room for novice teachers to make suggestions. Often a high score in *J Rubric, Category 2*: *Suggests Supports* was paired with a

low score in *J Rubric, Category 3: Suggests Additional Supports.* Thus, the scores for these two categories may be artificially low, since all successful scores are in either one category or another- a TC either saw effective instruction or suggested it, but is unlikely to have done both.

Research Question 3. The third research question asked how well secondary teacher candidates planned instruction that was designed to aid in content acquisition and promote academic language development. The following section focuses on quantitative data from prepracticum participants, presented in Chapter Four, as well as qualitative data from the field observation of the full practicum case studies given in Chapter Five, in order to answer this question.

The ALP trainings focused on the linguistic challenges of the content area as a way to shelter content and scaffold academic language for ELs. The foundational skill for planning linguistically responsive instruction is being able to isolate the challenging language that is part of a lesson. The descriptors from *LP Rubric, Category 1: Language Objective* is designed to measure how well TCs lesson plans did this. Table 24 gives the combined average for all prepracticum lesson plans as 1.13. Since the score is not zero, it might seem to indicate that TCs had some success in writing language objectives. However, Table 26 shows the descriptors for *Category 1*, and a score of 1 merely shows the presence of language objectives, while a score of 2 only requires attention to Tier Three vocabulary.

Table 26

Descriptors from LP Rubric, Category 1: Language Objectives

LP Rubric, Category 1, Score 0	None written
LP Rubric, Category 1, Score 0	Lang Objectives are written, but only restate content objectives
LP Rubric, Category 1, Score 2	Minimal attention to language present or attention ONLY to vocabulary (Tier 3 words only)
LP Rubric, Category 1, Score 3	Present with attention to language; have to address some aspect of language – beyond vocabulary.
LP Rubric, Category 1, Score 4	Present with strong attention to language

Thus, the score of 1.13 indicates a low ability to write lesson plans that attend to the linguistic demands of academic language in the content area classroom. Qualitative analysis showed that many TCs attended only to Tier Three, content-obligatory language that would be equally challenging for all learners, and thus was not a way to plan instruction that supports the need of ELs. Thus, TCs in this study were not able to isolate linguistic demand in order to plan instruction that addresses it.

The score in *Category 2, Measurable Language Objectives*, is designed to measure how well the language objectives are stated, insofar as they name an observable outcome, and include a plan on how to assess whether or not it has been met. Table 2424 gives an average of 1.27 for all TC prepracticum lesson plans. Many of the TCs at Landers College had already been taught how to write observable content objectives in their P1 methods class. These participants were able to write an observable language objective that started with "SWBAT," and some remembered to tie it to an assessment. These carry-over content area skills, which are a result of

good pedagogical trainings, inflated the score in this category. The score of 1.27 is not an indication of ability to plan instruction focusing on language objectives or objectives that are linked to these objectives.

The third category of the Lesson Plan Rubric measures how well TC prepracticum lesson plans are designed to promote proficiency in academic language. While Category 1 is designed to measure the foundational skill of linguistic awareness, Category 3 is designed to measure the consequent skill, promoting academic language development. As Table 244 shows, scores for *LP Rubric, Category 3: Instructional Supports Promote Academic Lang. Acquisition* are even lower than those for linguistic awareness at 0.51. This reflects the complete absence of scaffolding techniques aimed at addressing proficiency in academic language. This is not to say that there were no instructional supports offered. Chapter Three described the *LP Rubric* category for *Instructional Supports for Content Acquisition;* this category was designed to account for procedural scaffolds that are good practices for content area instruction but do not consider the additional challenges that face ELs, nor do they focus on language itself. Thus, while these lessons may have been written to include group work and multiple modes of representation, they were not addressing the linguistic features of the lesson or the challenges of non-native speakers in a mainstream content area class.

Table 27

Descriptors from LP Rubric, Category 3- Instructional Supports Promote Academic Language Acquisition

Score	criterion
Score 0	None
Score 1	Provides few opportunities for language development, beyond content obligatory language
Score 2	Provides some opportunities for language development, beyond content obligatory language
Score 3	Provides appropriate and well developed opportunities for language development, beyond content obligatory language *(i.e., beyond Tier Three words)*
Score 4	Teaches the vocabulary, word-level and/or sentence levels language objectives; Provides opportunities for language practice.

The final category addressing the quality of lesson planning, *LP Rubric, Category 4: Quality of Assessment of the Language Objectives,* measures TCs' ability to write a lesson plan that assesses how well learners mastered the linguistic feature that was the focus of the lesson's language objectives. At 0.46, this category scored the lowest of all, which is not surprising given that it is contingent upon the skills in Categories 1 and 3 (see Table 28 for descriptors): if TCs were not able to write language objectives, and were not able to design linguistic supports, it would be impossible to assess whether these objectives had been met.

Table 28

LP Rubric, Category 4- Quality of Assessment of the Language Objectives

Score	criterion
Score 0	No assessment planned
Score 1	Domain-irrelevant language challenges *(e.g., Write an essay to show understanding of a history concept)*
Score 2	The assessment provides some language supports that allow ELLs to focus on domain under assessment
Score 3	The assessment method or items would not be significantly more difficult for ELLs
Score 4	Provides assessment of language objectives that does not implicate language because assessment scaffolds performance, allowing demonstration of learning (e.g., *work with NL peers in well-structured groups)*

A synthesis of these quantitative data indicates that prepracticum TCs found it difficult to isolate a linguistic demand for their lessons. Lacking this focus, they found it even harder to plan lessons that support academic language development for ELs and to design assessments that could target language objectives without requiring substantial extraneous language demands. However, classroom observations of the case study participants as they were teaching in their full practicum, provide some more mixed results. None of the TCs observed had language objectives on the board, and the lessons that Zach, Zoe, and Betsy taught did not attend to language, scaffold academic language, or provide language-neutral assessments. However, Miranda, Alice, and River did design instruction that could promote academic language. Alice's rephrasing and banned word list help delineate the discourse of English Language Arts; her adapted texts help shelter the demands of Elizabethan English; and her scaffolding helped prepare students to read *Romeo and Juliet* aloud. Both Alice and River paid attention to all three

levels of the Beginning Framework for Teaching Academic Language, explicitly teaching the morphology, word-level, and sentence-level features related to their lessons. Both used recasting and appropriate scaffolding techniques. Alice had students use academic discourse as they presented their work, and River's assessment, plugging the content words into a Venn diagram, was a language-neutral way to assess the content objective.

Thus, based on the combined findings, some of the TCs were able to isolate language demands. Some were able to plan instruction that sheltered content and scaffolded academic language, and a very few were able to design assessment that focused on the language demand without implicating domain-irrelevant language.

Descriptive results

More is better. Of the TCs who took part in the ALP, the ones who were most effective were those who had taken optional coursework in teaching ELs, who were in a linguistically diverse field placement, and had mentoring teachers who modeled SEI. The data is clear that if teacher education programs seek to prepare TCs to support ELs, they should pursue every possible avenue to infuse LRP into their coursework.

Recognition of linguistic demand precedes ability to plan instruction. Most of the teacher candidates in this study were able to attend to linguistic demand, even during their prepracticum. This indicates the efficacy of teacher education that focuses on raising linguistic awareness. TCs most readily adopted attention to morphology and Tier Two vocabulary, but had more difficulty recognizing sentence-level features, perhaps because many content area teachers feel unsure in their own knowledge of grammar. Despite attention at each ALP training, TCs either did not recognize, or chose not to mention, syntactic challenges in their journals. This has implications for teacher education approaches grounded in systemic functional linguistics, which

focus on discourse-level features of academic genres (Achugar, Schleppegrell, & Oteíza, 2007; Aguirre-Muñoz, et al., 2008; Brisk, 2012; Gebhard & Haman, 2011; Schleppegrell & Go, 2007). While these approaches are the logical next step in teaching academic discourse to students who have not yet mastered it, teacher uptake might prove also difficult without a much more robust intervention that the ALP and its accompanying infusions.

While their prepracticum journals showed some growth in linguistic awareness, TCs' lesson plans showed little ability to plan instruction that sheltered instruction or promoted proficiency in academic language. All teacher candidates in this study had difficulty writing lesson plans with language objectives, regardless of content area, time in the field, or diversity of classroom setting. They were not able to isolate language objectives. The assessment of these language objectives also proved difficult, often complicated by domain-irrelevant challenges. This finding echoes that of Aguirre-Muñoz, et al., (2008): two-thirds of the teachers in their study could identify linguistic features of the text, but this awareness did not manifest itself in their practice. Awareness of the linguistic challenges precedes ability to teach them. Perhaps awareness of the linguistic challenge is the most that can be expected of undergraduate, prepracticum TCs, along with the ability to shelter these linguistic demands. Given the RETELL initiative in Massachusetts, TCs should have training in sheltered instruction by the time they graduate, if they are to receive the SEI Endorsement required to teach in that state (Chester, 2012). However, the ability to scaffold academic language will need support after graduation, through a teacher induction program and additional PD.

Quantitative analysis also indicates the positive impact of the infusions into the methods courses. Since only a handful of the participants had gone through these infusions, a robust statistical comparison could not be made. However, two of the most outstanding case studies, Betsy and River, had experienced these infusions. Aspects of the infusion seem evident in their full practicum observations, and both candidates mentioned them in their interviews. In these cases, the TCs reported that they appreciated the chance to talk exclusively about the language of their discipline with an expert, i.e., someone who has all three aspects of Bunch's (2013) pedagogical content knowledge (PCK): knowledge of content area, knowledge of pedagogy, and pedagogical language knowledge. Therefore, methods courses in TE should be revised to include all three aspects of PCK, since they are the most fertile ground for a discipline-specific analysis of linguistic demand and how to teach it.

TCs learn best how to support ELs when they observe and teach in linguistically diverse classrooms. Longitudinal analysis showed no statistical difference when comparing the quality of work submitted by TCs at the end of their first prepracticum with work submitted at the end of their third prepracticum. However, cross-sectional analysis showed the significant impact of placement in a linguistically-diverse school. In their journals, TCs observed and suggested language supports more often when they were in a multilingual classroom. These results need to be viewed with caution, however: TCs have some choice in practicum placement, and students who express a desire to be placed in culturally and linguistically diverse field placements are likely predisposed to do a better job attending to and supporting academic language. However, Phase Two data also support the impact of a diverse classroom: Alice did not participate in the enhanced methods courses, but had very diverse field placements and an experienced cooperating teacher, and she scored better than average in Phase One, and

performed well when observed. Thus, if TE programs wish to equip their teacher to work in linguistically diverse classrooms, they need to cultivate relationships with more diverse schools to serve as internship sites.

TCs learn to focus on the language of instruction when they witness instruction that is focused on language. Qualitative analysis revealed that TCs tended not to discuss the language itself, but rather how instruction related to the language, i.e., how it did or did not address linguistic aspects of the classroom. Teacher candidates did not focus on the language of instruction as an abstract concept, despite being prompted to do so. The prompts and the research questions separated recognition of linguistic challenge from the ability to support and promote their acquisition, positing that recognition of the construct of academic language should precede the ability to design instruction to shelter content and scaffold academic language. TC responses however, tended to discuss academic language only when it was the focus of content area instruction. This has implications for teacher education: as the review of the literature showed, much of the literature on preparing mainstream teachers to work with ELs focuses on the language itself, i.e., classical linguistics, functional linguistics, and systemic functional linguistics concentrate on morphological, lexical, syntactical, and discourse features of academic language. However, perhaps teacher candidates, lacking a linguistic background, may benefit from training that focuses on the methodology of teaching academic language with linguistic features. Rather than teaching language, perhaps teacher education should teach TCs how to teach language, and in doing so they can teach language *en route.* This further supports the need for methods courses that focus on linguistic demand and for placement in culturally and linguistically diverse sites with CTs who know how to shelter instruction.

Thus, experienced mentors are important. Based on the previous finding, TCs are more able to focus on language when they observe instruction that focuses on language. Both quantitative and qualitative findings from this Mixed Methods study support this point. Journal entries in Phase One that scored highly in Recognizes Supports Offered for Language Acquisition did so because they were observing a teacher who was sheltering language. In Phase Two, Alice and River both demonstrated strong skills in focusing on and supporting academic language in their full practicum observations, and they both mentioned how much they had learned from a strong cooperating teacher.

Vignette

What would a linguistically responsive TE program look like? Based on the findings from this study, a TC would be best served by a methods course that explicitly attends to academic language in a substantial way. TCs who participated in infused methods were more likely to see the importance of strong L1 skills, BICS versus CALP, the challenges of mathematical discourse and the need to scaffold language to support them (Cho & DeCastro-Ambrosetti, 2006; McLeman, Fenandes & McNulty, 2012; Schall-Leckrone & McQuillan; 2012 Terrell, 2012). These TCs would take an SEI Endorsement course, but other coursework would also attend to the needs of ELs in mainstream classrooms; it is crucial that many members of the TE faculty believe in the importance of supporting all learners, and are able to equip TCs with the skills needed to do so (Brisk, 2008; Costa, et al., 2005). These TCs would conduct their prepracticum observations in a culturally and linguistically diverse school, providing valuable experience that can help foster sociolinguistic consciousness (Friedman, 2002; García, et al., (2010). They would work with supervisors and cooperating teachers who both hold and SEI Endorsement on their teaching licenses, who understand the foundations of second language

acquisition, and are able to model effective scaffolded instruction and provide appropriate feedback. Upon entry into the profession, these teachers would participate in a teacher induction program that would focus on how to build proficiency in academic language, and continuing professional development on how to focus on the demands of academic discourse and text. Inservice training on academic language can make teachers feel better prepared to teach academic reading and writing (Achugar, Schleppegrell, & Oteíza, 2007). Such a career would support the elements of Lucas and Villegas' linguistically responsive pedagogy (2011).

Implications

This study investigated how TCs developed their ability to attend to the linguistic demand of their content area class and to scaffold instruction for ELs. This is important research, given the increase in ELs in U.S. schools (NCES, 2013), and research showing that most teacher preparation programs do not adequately prepare TCs to work with linguistically diverse students (Bunch, 2011). The findings from this study are particularly relevant today, as teacher education programs, particularly in Massachusetts, are struggling to adapt their programs of study to conform to the needs of a more diverse student body, and with the requirements of the state's RETELL initiative (Chester, 2012). The following section will talk about this study's implications for colleges like Landers, for the state of Massachusetts, and for teacher preparation programs in general.

Implications at the institutional level. Landers College has a social justice mission, and has been awarded a series of federal Title III grants to equip TCs to meet the needs of ELs. However, this study shows that Landers still has work to do. If teachers are to develop their skills in LRP pedagogy, trainings like the ALP are necessary, but are not sufficient to develop foundational knowledge. Attention to teaching ELs must be infused across the program of study.

The participants in this study benefitted from the infusions methods courses that were enhanced by faculty and doctoral students who themselves recognized the linguistic challenges inherent in each content area. When a teacher education faculty brings LRP pedagogy to bear within a methods course, it creates a discipline-specific community of learners who are able to address the relevant language, methods, and approaches of their own content area as they are apprenticed into its community. Schall-Leckrone and McQuillan (2012) helped TCs see the linguistic challenges of their discipline by focusing on nominalizations and "doing history"; Huang, Normandia, and Greer (2005) showed that teachers who learned to engage students in authentic math discourse taught students to engage in using advanced language structures in math. These approaches are more difficult in a group with mixed content areas. Therefore, methods courses at Landers College, and in other TE programs, should be revised to include all three aspects of PCK: knowledge of content area, knowledge of pedagogy, and pedagogical language knowledge (Bunch, 2011). These courses are the most fertile ground for a discipline-specific analysis of linguistic demand and how to teach it.

In regard to field placements, the findings in this study clearly show that TCs develop their skills better in a linguistically-diverse classroom setting. Teacher candidates cannot learn the needs of ELs if there are no ELs in their classrooms, and TCs would be better served if schools like Landers College established internship relationships with schools that serve cultural and linguistic minorities. Just as García, et al., (2010) proposed that culturally responsive teacher education should require involvement in the students' communities, LRP is more likely to develop if it has roots in both the school community and the university setting. These are the schools where TCs will learn more, as Friedman (2002) found: by housing TCs' first TE course in an urban school, participants reported learning important lessons about race, language, and

culture (2002). Moreover, these are the schools that could most likely use the additional help in the class.

Furthermore, the findings in this study indicate that TCs learn to scaffold instruction when they observe mentors who can model this practice for them. They need master teachers who can model the teaching of academic language concurrent with the teaching of content. Recall that the TCs in this study did not describe the language of their content area in isolation, even though that was the prompt. They were more likely to see the language when it was the focus of scaffolded instruction. Thus, Landers College should ensure that university field supervisors and mentor teachers have experience working with ELs, since this is the vehicle that will be most effective for helping TCs learn to recognize the challenges of content area language.

Implications for the state of Massachusetts. This study has implications for educational policy in Massachusetts. In the time since this study was begun, the state began implementation of the RETELL initiative. The current policy requires that the required competencies itemized on the SEI Endorsement Syllabus be spread across no more than two classes, to prevent them from being diluted (Bickerton, 2012). However, confining the content into one course may not be enough. River, the most successful TC in this study, took a course on teaching ELs, but also had the ALP training, a good mentor, linguistically diverse field placements, and an infused methods course. The syllabus of one course, without these other factors, might silo LRP into only one semester, and not be sufficient to prepare the typical TC to support ELs. Given the finding that TCs recognized linguistic demand better when it was the focus of a lesson, clustering the teaching of language for ELs entirely into one course relinquishes a critical opportunity. Perhaps teacher education coursework should also instruct TCs on how to teach language in the content area, and let TCs pick up a focus on language *en route.* This further supports the need for

methods courses that focus on linguistic demand and for placement in culturally and linguistically diverse sites with CTs who know how to shelter instruction.

The RETELL initiative requires TCs to have training in sheltered instruction by the time they graduate, in order to receive the SEI Endorsement required to teach in that state (Chester, 2012). Certainly River, who took a supplemental class whose curriculum is quite similar to that of the SEI Endorsement course, outperformed other TCs in this study. It is also hoped that more TCs, after gaining the SEI Endorsement, more TCs will be better able to serve ELs in their core content classrooms. However, the findings of this study show that even the strongest TCs may not be ready to scaffold all levels of academic language by the time they graduate, and they will need support later on, perhaps through a teacher induction program and additional PD. Teacher candidates are struggling to move to the other side of the desk, from student to teacher, and often are unsure of their own footing in their content. They may privilege content over pedagogy because they see the mainstream content area classroom being defined by the content area, by the canon or corpus that students are tasked to learn. They may be so focused on mastering the content for themselves that they may overlook the importance of learning to teach it. Induction and PD that will provide them with support and confidence in their pedagogical content knowledge will allow them to feel more secure in their pedagogical content knowledge. Furthermore, TCs might hold unspoken beliefs that scaffolding would be coddling; some may feel that secondary education is supposed to be rigorous. Someone holding such a belief might feel that all learners, including ELs, should learn every step of the curriculum, and should do it through blood, sweat, and tears if needed. However, a good mentor could model how scaffolded instruction can be rigorous, and how building depth in part of the curriculum can be more useful than skimming a mile wide, but only an inch deep, across the entire curriculum.

Implications for Teacher preparation programs. The Lucas and Villegas' (2011) framework for linguistically responsive pedagogy includes the ability to identify the language demands of academic language in the classroom. However, it stops short of describing what this awareness might look like. This research helps develop an operational definition of academic language, one that novice TCs can understand. This research also contributes to the conversation regarding how novice teachers are able to employ the concept of academic language in their content classes. As the review of the literature made clear, there are many ways in which the construct of academic language is operationalized (Anstrom, et al., 2010), but for the field of teacher education, the data show that TCs are more able to employ lexical and morphological features of academic language than they are to employ (or even understand) syntactical, text-level, or SFL features of academic language. The TCs in this study were able to attend to lexical and morphological features of their content area, but they did not employ a focus on syntactical features. This may be a result of their own limited understanding of English syntax, or their privileging of content over language. A current trend in the teacher education literature towards SFL should bear these results in mind. While lexical and morphological skills are not enough, they seem to be the best place to start. Academic language novices are unlikely to explore sentence-level features with their students.

This study has shown that the skills needed to support culturally and linguistically diverse students develop over time. This longitudinal study followed students over two years, yet it revealed only limited growth in ability to perceive linguistic demand, and, for most, very little growth in ability to scaffold instruction for ELs despite supplemental trainings. Clearly, a supplemental training is not enough. Perhaps, a one-semester SEI Endorsement course will also not be sufficient. Teacher education programs must first build foundational skills, i.e., attending

to linguistic demand and building sociolinguistic consciousness awareness, and then structure the program of study to develop the more complex skills of scaffolding instruction over time. As Lucas and Villegas (2013) state, teacher education is only the first phase in a continuum of professional learning. New teachers will need induction support as they enter into the field, and continuing professional development on how to focus on the demands of academic discourse and text. What's more, they will need facility in sheltering and scaffolding instruction in multiple languages from a variety of language families as their classrooms become more diverse. This requires not only language competence but also cultural competence, as practitioners must possess the ideological clarity to affirm language diversity. As Batt (2010) showed, even intensive professional development on the SIOP model is unlikely to be fully implemented in the classroom without follow up and coaching support.

Also, any teacher training on Sheltered Instruction (including the SEI Endorsement course) must expand itself beyond the requirements of the SIOP (Echevarria, Vogt & Short, 2008). While the eight components of the SIOP include many methods and approaches that help ELs to understand content, its model for language objectives does not require the teacher to identify a specific feature of academic language on which to focus. As this study has shown, TCs may think they are focusing on language, while only attending to Tier Three vocabulary. Furthermore, sheltering is not enough; it is another instance of privileging the acquisition of content over the development of linguistic knowledge and skills. A narrow definition of sheltering content may not include scaffolding students into the discourses of academic language needed for them to achieve mastery.

Why is it that, after three semesters and supplemental trainings, so many of these talented TCs were still unable to attend to linguistic demand or to scaffold academic language? A

possible explanation lies in the content methods courses, as mentioned above: River and Betsy had infusions of academic language into their content area methodology courses, and these seem to have borne fruit. Many of those entering the field are White, monolingual, and thus have had very little exposure to sheltered instruction. How are TCs to learn to attend to language demands and plan instruction that supports them if they have never seen in done in practice? Without modeling, they will re-enact the instruction that they received. Bunch's (2013) conception of pedagogical content knowledge (PCK) has three elements: knowledge of content area, knowledge of pedagogy, and pedagogical language knowledge. Too often, teacher preparation privileges content and pedagogy over linguistic knowledge. Thus, those who teach methods courses in Teacher Education programs need to be able to teach all three elements; TE faculty should be able to model sheltered and scaffolded instruction. The classroom teachers also need to be able to model instruction that support academic language, or at least shelters content area demand; with the rollout of SEI Endorsement trainings in the state of Massachusetts, it can be hoped that this will more often be the case. The university field supervisors must also know enough about academic language and sheltered instruction to provide guidance to these novice TCs.

English Learners are marginalized by a Eurocentric curriculum (Sleeter, 2005), by mandatory testing with instruments normed on native English speakers (Abedi, Leon, & Mirocha, 2003), and by teacher preparation that ignores their specific needs (Bunch, 2011). Just as EL students are marginalized, so is the knowledge of how to teach them. Before the RETELL initiative, Landers College had to be creative in how to schedule the Academic Language Project in the margins, around the existing program of study. For students like River, a course on teaching ELs was optional. 40 years after *Lau vs. Nichols* established a legal precedent to ensure

that students had the necessary skills to benefit from public education (Watson, 2004), the federal Department of Justice had to step in to ensure that ELs in Massachusetts would receive equitable in K-12 education (Chester, 2012).

Moreover, the data presented here speak to the efficacy of a multifaceted approach: the most successful TCs in this study had multiple exposures to SLA and LRP. However, there is a moral imperative to infuse LRP into all teacher education coursework. Isolating the competencies needed to engage ELs into one course, as required by RETELL, will continue to marginalize ELs by confining their educational needs into a separate silo, ghettoizing it and symbolically sealing it off from the general program of study. There is a risk that, by concentrating SEI into one course, it might slip from the syllabi of other courses, to free up room in a crowded curriculum. This would mean that in the worst-case scenario, TCs would only learn how to teach ELs during one obligatory course. In this case, the RETELL initiative, designed to "Rethink Equity and Teaching for ELLs," might further marginalize ELs in TE. Teacher candidates need opportunities to learn about how to educate *all* learners, and this must happen in *all* classes and field practica, not just in an isolated course that TCs are compelled to take in order to obtain an SEI Endorsement.

Limitations of the Study

The intention of this study was to conduct a mixed-methods study that would investigate how secondary education teacher candidates developed their awareness of the linguistic challenges of their respective content areas, and how this awareness influenced their lesson planning and teaching practice. While the results of this study add to the literature on preparing TCs to work with emergent bilingual students, it has several limitations that may affect its generalizability. The first limitation is its small sample size. The research design limited the

sample to include only those TCs who submitted multiple semesters of data. A larger group, that is more representative of different subject areas, might provide more generalizable results.

The second limitation is the validity of the rubrics used. The *J Rubric* and *LP Rubric* were developed, piloted, and revised by a small team in two iterations. As with most rubrics, there is subjectivity in their application. Because there were only two readers, training helped to ensure IRR in this study, but the rubrics themselves need more specificity before they can be used in a larger team.

Third, there are many possible confounding variables that are not controlled for in the research design. Avenues of infusion, TC experience with bilingualism, GPA, and SES all may have had a significant impact on the findings, but the data collected for this study were incomplete in these regards and thus the relative contribution of each of these factors cannot be determined.

Future research could address these limitations by using a larger sample and collecting more detailed information from participants to run multiple regression analysis that could account for the impact of extraneous variables. The rubrics would benefit from revision and from a further test of its validity and reliability.

Recommendations for Future Research

While findings from this study describe the trajectories along which TC develop their ability to attend to linguistic demand and design instruction that addresses it, future research should investigate how these trajectories continue, and attempt to measure the impact of recent changes to the TE curriculum. This section presents several specific future research recommendations. The first set of recommendations outline approaches for researching how

teacher candidates develop their skills, and the last two relate to the impact of the changing policy landscape in teacher education in Massachusetts.

There is room for a variety of methods in investigating how TCs transfer LRP into teaching practice. A three-year out survey on the TCs involved in this study would provide valuable analysis of how they have been able to increase their ability to promote academic language for all learners since entering the field. Quantitative methods could conduct multiple regression analysis, using a revised version of the rubrics involved in this study. Ability to recognize linguistic demand or promote academic language would be the dependent variable and data would be coded to capture an array of independent variables, such as TC language background, type of field placement, enhanced methods courses, and content area. On the other hand, an ethnographic study could work with a small cohort of TCs to examine how their skills develop over time. It could document the TCs' experiences in a given semester, or could examine growth longitudinally, from their first prepracticum through to their induction, perhaps extending to a three-year-out survey.

Recent iterations of the ALP, occurring after this study, have explicitly incorporated features of Systemic Functional Analysis. Just as the ALP needed to conceptualize an outline of academic language that would be accessible to TCs, this second wave of the ALP has tried to calibrate how much of SFL undergraduates can understand and apply. Investigating how an SFL approach has helped TCs to understand, recognize, and scaffold the concept of field, tenor, and mode in their content areas would provide useful information to revise teacher education programs and improve overall instruction for all schoolchildren.

Regarding policy, the SEI Endorsement has changed the program of study in teacher education programs at Landers College, and other IHEs in Massachusetts. It would be useful to

conduct a broader analysis of how several schools of education have integrated aspects of LRP into their curriculum. How have these changes impacted the needs of TCs and the skills that are taught in their teacher education program of study? Indeed, how will the Endorsement itself prepare them to work with ELs?

Many teachers enter the field as a second career. They hold an undergraduate degree unrelated to teaching, and become certified to teach in a graduate program or in a nontraditional alternative certification program. These programs often take less than two years. While older TCs may be developmentally more ready for apprenticeship, these accelerated programs require less classroom time and less time in the field. What preparation are TCs who enter the field through alternative routes receiving given this limited time? How do these students perform, relative to teachers who had the full, undergraduate program of study?

It is recommended that future research in this area continue, so that the field of teacher education can learn how best to equip TCs to serve all the students in their classes. The field of TE would benefit from a better understanding of how TCs develop their awareness of the challenges that ELs face, of how long it takes TCs to learn to scaffold instruction, and what kinds of curriculum can best promote these outcomes.

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Appendices

Appendix A: Interview Protocol

Learning to Teach Academic Language

Interview Protocol

The interview will be structured as an open-format, semi-structured interview. The following questions will be used, and follow-up questions will be asked as necessary.

- What do you think are the biggest challenges facing ELLs in the content areas? Please explain?
- How has your understanding of Academic Language changed since the start of this semester?
- How have the trainings and materials provided through the Academic Language Project helped you to understand the challenges presented by the language of your content area?
- How the trainings and materials provided through the Academic Language Project helped you to prepare ELLs to master the Academic Language in your subject area?
- In your reflections/lesson plans you wrote that… Can you tell me more about that?
- In addition to the ALP training, what else has affected your ability to understand the challenges presented by the language of your content area? (For example coursework, readings, other experiences or resources.)
- What do you wish you had known?
- If there had been more ELLs in this class, is there anything you would have done differently?

Appendix B: ***Journal Reflection Rubric*** **(*J Rubric*)**

	HIGH		Medium		Low	
	5	**4**	**3**	**2**	**1**	**0**
Attends to the AL demands of lesson for ELLs	• Attention to linguistic demands of readings, lecture, tasks and directions in class. • Reflection on ELLs in the class *(if possible)* • Notes: Vocabulary • Word-level structure • Sentence-level structures	• Attention to linguistic demands of readings, lecture, tasks and directions in class including but beyond Tier Three vocab	• Attention only to Tier Three vocab • Little attention to AL demands beyond the content objectives •	• Attention to only Tier Three vocab • NO attention to AL demands	• Not evident	• Overlooks obvious demands of AL (i.e., lesson on clichés when generating imagery)
Recognizes supports offered for **language** acquisition for ELLs	• Recognizes multiple supports, multiple modes of presentation and analyzes their use and success in **promoting academic language development**	• Few supports identified, but they are analyzed	• Notices several supports, but they are not analyzed	• One or two support identified, not analyzed *("computers would help")*	• Attends to supports that are not targeted towards academic language acquisition for ELLs *("helped with spelling, helped organize paragraphs")*	• No supports identified
Recognizes supports offered for **content** acquisition for ELLs	• Recognizes multiple supports, multiple modes of presentation and analyzes their use and success in **helping students acquire content**	• Few supports identified, but they are analyzed	• Notices several supports, but they are not analyzed	• One or two support identified, not analyzed *("computers would help", "teacher showed a video")*	• Supports that do not address language demands of the content for ELLs *("helped with spelling, helped organize paragraphs")*	• No supports identified

Journal Reflection Rubric (Page 2)

Suggests additional supports for language acquisition for ELLs (NOTE: ANY score in this category is signif)	• Offers multiple additional appropriate supports focused on language development; • Analyzes why they are needed/ helpful • Supports use multiple modes of representation (e.g., visuals, G.O., use of L1, attention to vocab, adapted text, note-taking skills, translating into everyday speech, questioning, group, annotating…)	• Offers several additional appropriate supports, • with analysis/ reflection on why they are needed or helpful	• Offers some additional appropriate supports, • with some analysis/ reflection on why they are needed or helpful	• Offers some additional supports • Little analysis of why supports are needed/ helpful	• Offers few additional supports • No analysis of why supports are needed/helpful	• Offers no additional supports •
Suggests additional supports for content acquisition (i.e., is developing the ability to shelter content appropriately)	• Offers multiple additional appropriate supports; • Analyzes why they are needed/ useful • Supports use multiple modes of representation (e.g., visuals, G.O., use of L1, attention to vocab, adapted text, note-taking skills, translating into everyday speech, questioning, group, annotating…)	• Offers several additional appropriate supports, • with analysis/ reflection on why they are needed or helpful	• Offers some additional appropriate supports, • with some analysis/ reflection on why they are needed or helpful	• Offers some additional supports • Little analysis of why supports are needed/ will help	• Offers few additional supports • No analysis of why supports are needed/ will help	• Offers no additional supports •

Appendix C*: Lesson Plan Rubric* (*LP Rubric*)

Lesson Plan Rubric Part 1: Language Objectives (LPR1: Language) Language Objectives: What L will Students learn? How will acquisition of the objective be measured?						
Category 1: **Language Focus**	Descriptors	4	3	2	1	0
Describes what language the students will learn	• Tied to ELPBO • Addresses multiple modes: listening, speaking, reading, writing • Addresses linguistic challenge of lesson for NNS- Which challenging aspect of AL will ELLs master? • Includes both subject matter **vocabulary** (Tier Three words) & other vocab (tier 2, 1) • Addresses **word-level structure** (morphology, cognates) • Addresses linguistic challenges of academic grammar **at the sentence level (***past tense, modals, passive etc. reading/writing longer sentences…)* • Addresses other features of academic language: - figurative language - being explicit - being "detached" - supporting points with evidence • Considers language functions • Has differentiated L objs based on level of L proficiency	Present with strong attn to language	Present with attn to language Have to address some aspect of language – beyond vocabulary .	Minimal attn to language present Or attn ONLY to vocabulary (Tier Three words only)	Lang Objs are written, but only restate content objectives	None written

Category 2: Observable	Descriptors
Makes it obvious how teacher will know whether or not Lang Obj has been achieved. (I.e., assessment is built into written language objective)	• Lang, objectives are stated in terms that are observable & measureable: *SWBAT…* • Plans for formative assessment tied to language objectives • Methods of assessment are specific ✓ *Students will read sentence they have written in the past tenses…,* ✓ *Students will present group findings…,* ✓ *Students will fill in reading log…* ✓ *Students will complete worksheet on…* ✓ *Students will write ten new works into their Word List.*

LP Rubric **(Continued)**

	Descriptors	3	2	1	0
Category 3: Instructional Supports for language acquisition	Teaches the vocabulary, word-level and/or sentence levels language objectives. Provides opportunities for language practice.	Provides appropriate and well developed opportunities for language development, beyond content obligatory language *(i.e., Tier Three words)*	Provides some opportunities for language development, beyond content obligatory language	Provides few opportunities for language development, beyond content obligatory language	none
Category 3A: Instructional Supports for content acquisition	Numerous supports to make content accessible to ELLs. E.g., **procedural scaffolds** – demonstrations, written instructions, etc.; **cognitive scaffolds** – graphic organizers, outlines, etc.; **Linguistic scaffolds** – modified language, rephrasing, etc.)	many	some	few	
Category 4: Assessment for language objectives	*Provides assessment of language objectives*	see above	see above	see above	no assessment planned
Assessment For content objectives	*Provides assessment of content objectives that does not implicate L* • Work with NL peers in well-structured groups • Assessment scaffolds performance, allowing demonstration of learning	The assessment method or items would not be significantly more difficult for ELLs	The assmnt provides some lang supports that allow ELLs to focus on domain under assmnt	Domain-irrelevant language challenges *(e.g., Write an essay to show understanding of a history concept)*	no assessment planned

Appendix D: Project Requirements

SECONDARY STUDENTS – ACADEMIC LANGUAGE PROJECT

As part of your Pre Practicum experience, you are being asked to focus on the demands of academic language within your particular content area and the challenge they present to English Language Learners. The Academic Language Project will try to support you as you learn to a) identify these demands and b) learn how to support ELLs in both their language development and academic achievement.

Requirements for the Academic Language Project:

1. **Attend one training**: You will attend a 120-minute training on academic language.
2. Learn to identify challenging aspects of language within your content area and ways you can help ELLs learn the language and the content: Each day at your school (10 days in all), you should be doing this in *one* of two ways:

- Observe a class and identify and reflect in your journal on the language demands of the lesson (or part of a lesson) you observed. Did you observe oral or written language? Were pupils asked to listen, read, write or speak? Think about: was the lesson presented as a lecture or a group activity, was any type of written material provided? What aspects of the language you observed do you think would be challenging for ELLs and why? Be as specific as possible as you identify linguistic challenges (e.g., specific vocabulary, idioms or slang, features of words, and/or sentence structures). Given these challenges what supports might you have offered for ELLs so they would have access to the language and, thus the content?

  OR

- Write language objectives and supports into your lesson plans. In your objectives, be as specific as possible as you identify what aspects of language ELL pupils will learn. In your procedures be clear about how ELLs will be able to participate and learn both the academic language and content based on supports/scaffolds you provide.

3. Submit your work:
    a. **Journal**: Your observations and reflections are to be included in one or two paragraphs at the end of each of your weekly journals. Please note that on the weeks you prepare a lesson plan, you do not need to provide an observation/reflection on Academic Language in your journal- the language objectives in your lesson place will suffice. At the end of your Pre-Practicum experience you will copy and paste all of your reflections into one document and submit ***via email*** to academic@landers.edu

    b. **Lesson Plans**: at the end of the semester, please ***email*** a copy of all this semester's lesson plans to academic@landers.edu ; attachments and other materials are not necessary.
    c. **AL Log**: Describe each of your 10 activities on the sheet below and submit to your supervisor at the Close Out Meeting at the end of the pre-prac

    d. **Reflection**: After all 10 sessions, fill out the "Reflections" page and submit to your supervisor.

Academic Language Project

Reflection Observation Guide

As you observe a class, you might want to use these points to help guide your journal reflection on the challenges of academic language for non-native speakers of English. You do not need to fill in this form- it is only a guide for the academic language reflections that will be part of your journal.

1. What were the language demands of the lesson (or part of a lesson) you observed?

Were pupils asked to listen, read, write or speak?

Was the lesson presented as a lecture or a group activity?

Was any type of written material provided?

2. What aspects of the language you observed do you think would be challenging for ELLs and why? Please answer this even if there are no apparent ELLs in class.

Try to move beyond the difficulty of the content *(vocabulary of quadratic equations or the Tier Three words in Science, for example)* since those are hard for everyone in class.

What would be **harder** for non-native speakers? (e.g., Tier Two vocabulary, idioms or slang, features of words, language functions and/or sentence structures, using the words "greater than/less than"?).

3. Given these challenges, what supports **did you see offered** to try to:

- Give students at all levels of proficiency access to the content?
- Teach the academic language of the lesson?

Were they appropriate supports? Why or why not?

IDEA BANK

Some suggestions for possible instructional supports:

Use of visuals, adapted text, annotated texts, electronic media, graphic organizers, manipulatives, realia, modeling, hands-on activities, use of L1, questioning, group work, role-plays, teaching note-taking skills, translating into everyday speech, clear and explicit content and language objectives, clearly explained and demonstrated directions for Academic tasks…

4. What additional supports might you have offered to:

- Give students at all levels of proficiency access to the content?
- Teach the academic language of the lesson?

How would these supports help?

Name:_____ Placement:_____

Pre Practicum: **GRAD UG #1 #2 #3** Semester: _____ F / S 20___ Supervisor:_____

Major:_____ *year*

Date of session	*Time spent*	*This week I.. (check one)*	*For my observation or lesson plan this week I focused on [what specific aspect of AL]*
1.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
2.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
3.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
4.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
5.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
6.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
7.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
8.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
9.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	
10.		☐ *observed class and wrote in my journal* ☐ *wrote a lesson plan*	

SECONDARY STUDENTS - Academic Language Project: Reflection Page 3 of 3

Fill this page out at the **end** of you the Pre Practicum Experience and **submit it to your supervisor,** along with the Activity Log. In addition, please remember to ***email*** your lesson plans and your journal excerpts to academic@landers.edu.

1. What I learned about the significance/challenges of academic language for ELLs as a result of these observations/reflections/lesson plans/
2. Recommendations for further Academic Language Project

Pre-Prac Student's Signature:_____

Supervisor's Signature: _____ Date: _____

Appendix E: Informed Consent Letter

Learning to Teach Academic Language

Informed Consent Form for Participants

You are being invited to take part in a research project conducted by Kevin O'Connor, a third year doctoral student at Landers College, that focuses on preparing content teachers at the secondary level to teach Academic Language to English Language Learners (ELLs). This study is supervised by Dr. Anne Homza and is part of a project funded by the United States Department of Education. The study seeks to document and analyze teacher candidates' understandings of academic language and the linguistic demands of content area instruction on ELLs over time. This is why I am asking for your permission to review the materials you submit during your pre-practicum and practicum experiences (journals and lesson plans) and to participate in an interview about your experiences each semester that you engage in a pre-practicum or full practicum experience.

In each interview I will be asking you questions about your own attempts to focus on Academic Language in your content area. Each interview will take approximately 45 minutes to an hour to complete. With your permission, I will be taking notes during the interview on what you are saying and audio recording the interview to ensure accuracy. The audio recording will be transcribed prior to analysis.

While there may be unknown risks to you through your participation in this study, I do not anticipate any risks. Precautions will be made to keep the information you provide

confidential: Your name and the school(s) where you have taught will not be named in the final report.

In order to protect your privacy during the data collection and analysis stage, you will be assigned a coded number so that no one, other than myself, will be able to link information you provide to you. Every participant will be assigned a coded number so that no one will be able to identify participants by name. This list of coded numbers will in a locked file in the Project TALCA office. The list of identifiers will be stored separately from the data in a second locked file. The interview transcripts will be securely stored separately from the list of identifiers as well. When writing the report I will not use names, but pseudonyms with short descriptions of the class standing (a sophomore, English major). Schools will also be assigned pseudonyms with short descriptions to identify and describe the setting (an urban elementary classroom in New England, enrollment information, etc.). These descriptions will be used to describe, rather than to try and identify participants and schools.

There are ways in which you could benefit from this project, including the opportunity to further reflect on how best to support the needs of ELLs once you enter the teaching profession.

Your participation in this project is voluntary. This means that at any time you have the right to withdraw from the study, to not answer questions, or to discontinue participation at any point in time during the project. I appreciate your willingness to participate and if you have any questions, please feel free to ask.

If you have any questions about the research project you can contact me by phone at (508) 740-xxxx or through e-mail at oconnohj@landers.edu. You can also reach my research advisor, Dr. Anne Homza at 617-552-6265 or through e-mail at homzaan@landers.edu. If you

have any questions about your rights as a participant in a research study, you can call the Landers College Office for Human Research Participant Protection at (xxx) xxx-4778.

I understand the above information, have had my questions answered, have been provided with a copy of the consent form and voluntarily consent to participate in this research.

Signature of Participant_____ Date:_____

Printed Name of Participant_____

Appendix F: Recruitment Scripts

Learning to Teach Academic Language

Recruitment Email

My name is Kevin O'Connor and I am a doctoral student here at the School of Education at Landers College. I'm working on a research project on teaching Academic Language in the content areas, and I am contacting teacher candidates who attended an Academic Language Training project in Spring 2009 or later to take part in the research study.

I was wondering if you would be interested in participating in the study by taking part in a series of interviews over the course of your program. These interviews would ask general questions about your reflections on the linguistic demands of your content area and the planning of lessons with a focus on academic language.

Please see the attached sample consent form for more information about the study and what your participation would involve. I hope to hear from you soon.

I will be following up with a phone call soon.

Thanks.

Kevin O'Connor

Telephone Script

(for the follow-up phone call)

Researcher: Good Evening, is (potential research participant's name) available?

Researcher: My name is Kevin O'Connor and I am following up on an email I recently sent you about a research project. I am a doctoral student at the School of Education at Landers College. I'm working on a research project on teaching Academic Language in the content areas, and I am contacting teacher candidates who attended an Academic Language Training project in Spring 2009 or later to take part in the research study.

I was wondering if you would be interested in participating in the study by taking part in a series of interviews over the course of your program.. These interviews would ask general questions about your reflections on the linguistic demands of your content area and the planning of lessons with a focus on academic language.

If you are interested I would be happy to send you more information on the project and what your participation would entail. Do you think you would be interested in learning more about the project? (If yes) Would it be possible to get some alternative contact information for you including a mailing address where I can send you more information?

Thank you very much for your time and consideration!

Email

Developing Understandings of Academic Language in the Content Areas: Teacher candidates' Reflections, Lesson Planning and Practice

Letters/E-Mails to Potential Research Participants

(Date)

Dear (personalization that will include the potential research participant's name),

We are currently conducting a research project on the effectiveness of the Academic Language Project by interviewing teacher candidates who participated in one of the trainings. The purpose of this research project is to combine insights from these teacher candidates' experiences with current research on teaching Academic Language in the content areas to better equip teachers to succeed in linguistically diverse classrooms.

I am writing because I would like to interview you as part of the study. You recently finished a semester that included a Pre-Practicum Seminar, and you input would help enhance this research project. This interview would take place at a convenient time and location for you and would last about an hour.

Thank you for your time and consideration. If you have any questions about this research project please feel free to contact me either through telephone (508-740-xxxx) or e-mail (oconnohj@landers.edu).